



Water cooled pneumatic spot welding gun

# *GIGA PRESS*

## *YA-9*

Instruction manual

Thank you for purchasing the water cooled spot welding gun "YA-9". Please read this instruction manual carefully for correct use.  
After reading this manual, store it in an easy to access location so that it can be reviewed whenever necessary.

***YASHIMA CORPORATION***

We wish to thank you for purchasing a water cooled pneumatic spot welding gun "GIGA PRESS YA-9". Before use, please carefully read and understand precautions and the way of use described on this instruction manual. If neglected, the machine may not fully exercise the best performance; also, serious physical damages such as fatal accidents and fire may occur. Thus, pay attention.

If you have any question on your purchased product and on the contents of this manual, please freely contact your local distributor or us.  
Please carefully keep and store the instruction manual and warning labels. If lost or damaged, promptly contact your local distributor or us and receive the replacement.

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## Before Use

The YA-9 pneumatic spot welding gun now includes an air cylinder.

### Special Features of YA-9

1. Maximum clamp pressure 450daN ( 450kgf)  
High Tensile Strength Steel Sheets or various kinds of car body panels can be welded tightly when the gun is used with a powerful spot welder.
2. Same weight as the current YA-5R gun and output pressure is 61% greater than input pressure.
3. Easy and simple set up system; Easy tip and arm change.
4. The standard 16 cap tips with the same shape as used in car manufacturing is used.
5. The earth side of electrode also made water cooled so 90% of the electrified components are entirely water cooled.
6. The double acting air cylinder creates powerful and smooth piston movement which ensures stronger pressure forces.
7. The rotational electrode and open-arm system allow welding performance from many directions.
8. The arms are opened to side direction and it's possible to avoid an obstruction.  
It helps to weld for some complicated car body parts.
9. Easy high pressure arm change.



### Caution

This gun is designed only for use indoors. In case of accidents, defects and trouble caused from rust, corrosion or leaks when this gun was used outdoors it will not be guaranteed.

# Safety Instructions

## Safety Symbols

This handling manual indicates many kinds of safety symbols to prevent serious injuries, death, and damage to your possessions.

Please read and understand all of the meaning of the symbols before starting operation.



### Danger

Immediate hazards which could result in serious personal injuries or loss of life.



### Warning

Potential hazards which could result in serious personal injuries or loss of life.



### Caution

Potential hazards which could result in minor personal injuries or damage to the product.



### Danger

Electromagnetic field warning

Electromagnetic fields are created near the secondary cables.

This may result in serious damage to a person wearing a pacemaker.

Please keep a sufficient distance of over 2m from welding device and gun.



### Warning

Supply Voltage

The welding machine which is connected to the gun should never be used on the incorrect supply voltage. It may cause an electric shock and/or fire.



Earth, Grounding

In order to prevent an electric shock, please be sure to have a ground connection before the power source is connected.





## Warning

### Operating Environment

When the gun is used welding sparks are created.

The sparks and arcs can be a cause of fire and explosion.

Please keep inflammable gases, fumes, objects and fuel tanks a minimum distance of 8m from the welding area.



### Prohibition of disassembly and modification

It is prohibited to disassemble or modify.

Maintenance by a qualified serviceman will not be guaranteed if the product has been modified in any way.



### Protection

Wear safety glasses with side shields and correct filter shade to protect your eyes from welding spatters. welding spatters can injure eyes and skin.



1. During operation of the product, the clamp has a maximum pressure of 450daN. It can cause a serious injury.



2. Do not touch heated parts

Do not touch the main body of the gun, rotary electrode, arms or tips.

During operation and for a while after finishing the operation, these parts will be hot.

If you touch them with bare hands it may burn. Wear welding gloves, special fire-resistant protective cloths and trousers.



## Caution

### Before operation

Do not wear watches.

They might malfunction due of the influence of electromagnetic fields.



## Warning

The symbol below is used in this manual to indicate a warning to prevent serious injury. Please pay careful attention to parts which are marked with this warning symbol.



## Warning

During operation of the product, the clamp has a maximum pressure of 450daN. It can cause a serious injury.



Do not touch heated parts

Do not touch the main body of the gun, rotary electrode, arms or tips.

During operation and for a while after finishing the operation, these parts will be hot. If you touch them with bare hands it may burn. Wear welding gloves, special fire-resistant protective cloths and trousers.

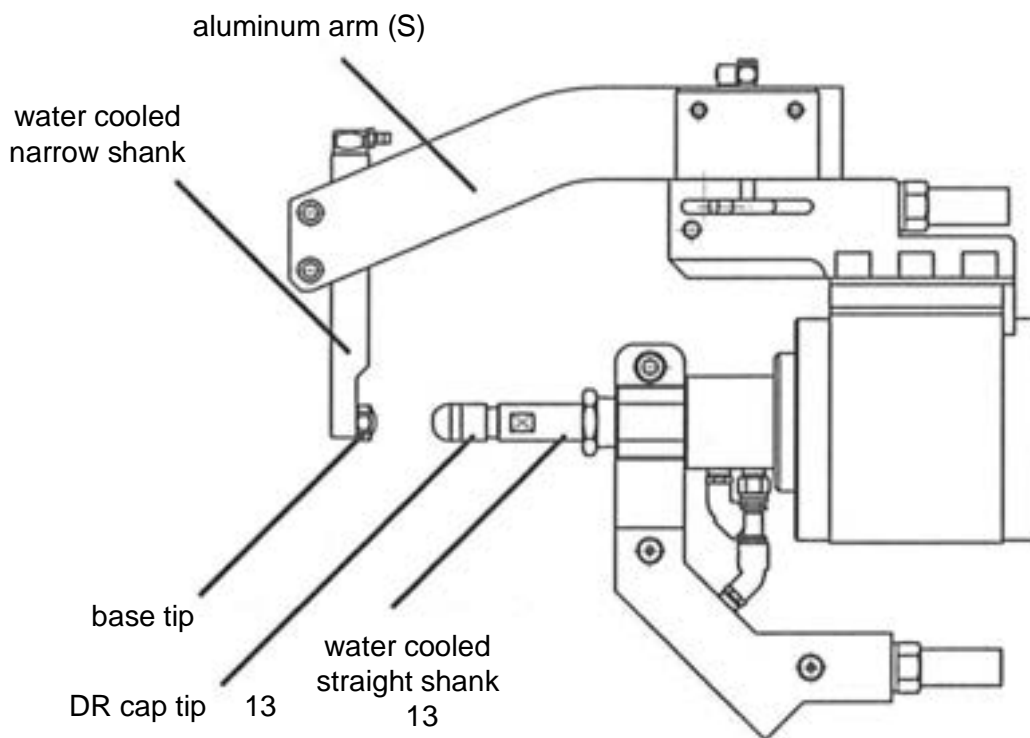
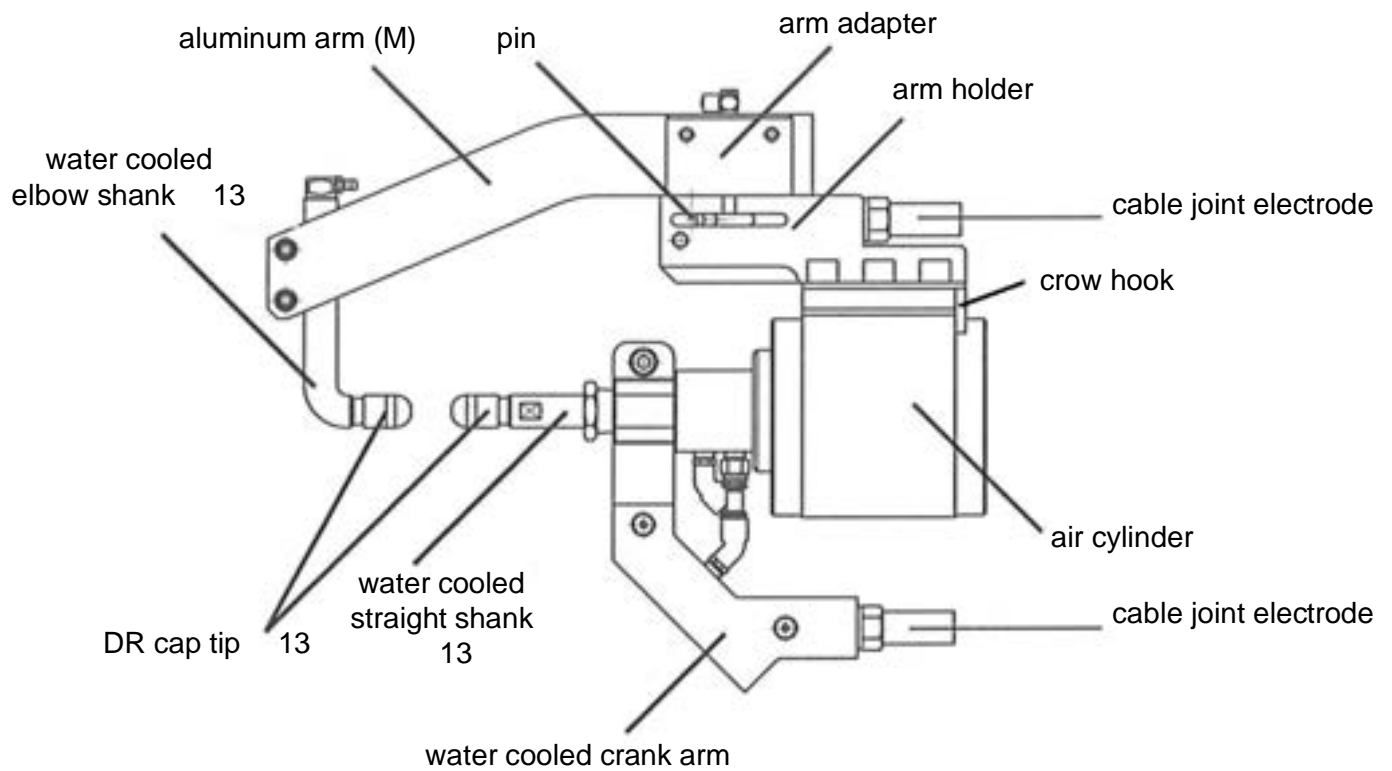


### Protection

Wear safety glasses with side shields and correct filter shade to protect your eyes from welding spatters and flashes of lights. welding spatters can injure eyes and skin.



## The Name of Gun Components



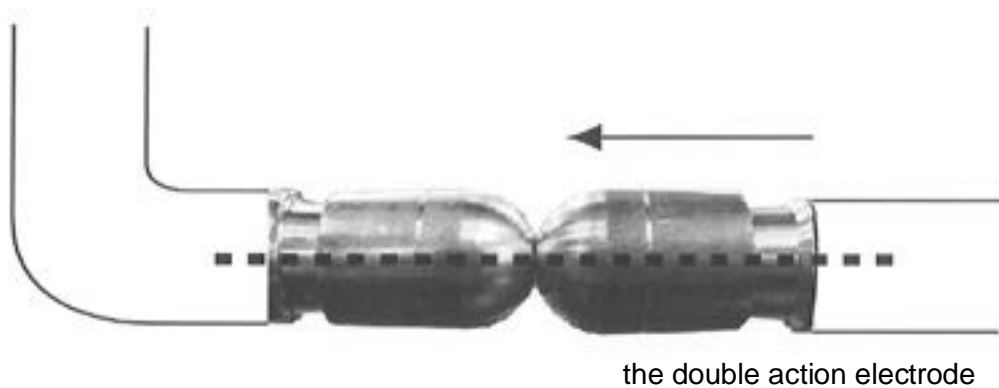
## Operation

Please set Aluminum arm (M), elbow shank 13, water cooled straight shank 13 and DR cap tips.

Optional parts: Narrow arm Assy ( Aluminum arm (S), Water cooled base tip holder, Base tip ) and U arms etc.,

### 1. Checking the top of cap tip

Ensure that the center is adjusted in all directions.



Extend the double action electrode toward the top and adjust it to the tip top of the arm side, and confirm that the axis is adjusted.

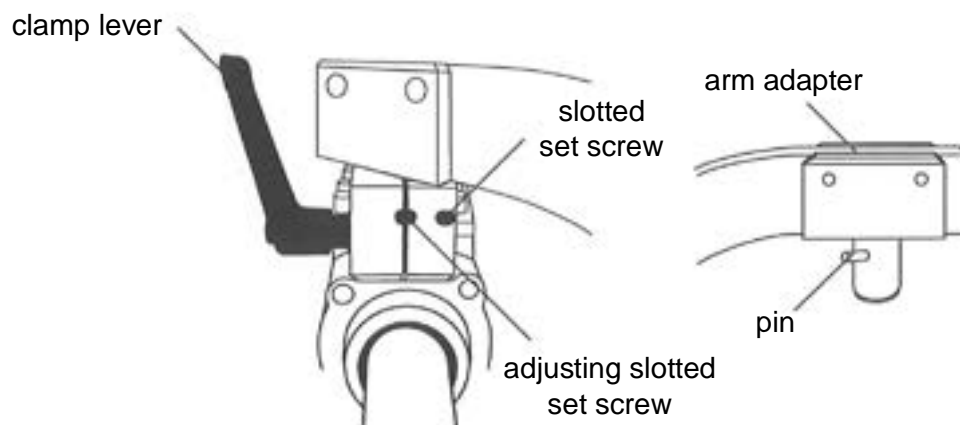
If not being adjusted here, adjust it in the way described on the next page.



## Way to adjust

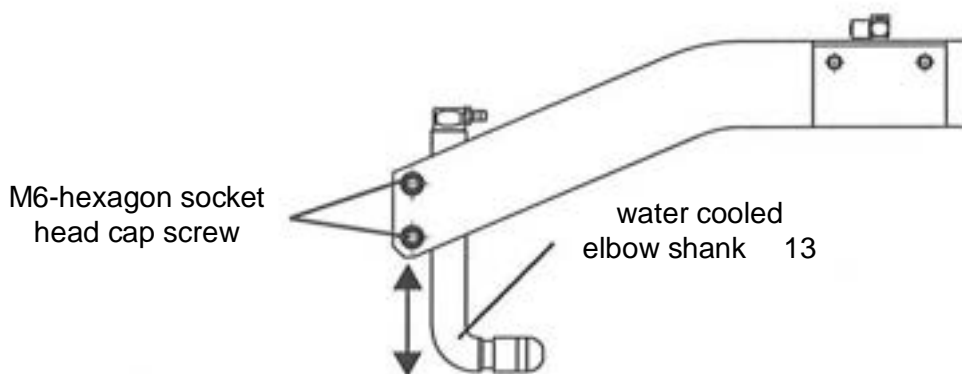
### Left and right directions

- (1) Loosen each screw in the order of clamp lever, lock slotted set screw, and adjusting slotted set screw.  
Be sure to loosen the slotted set screw first, and then adjust it  
Wrong order results in breakage on the adjusting slotted set screw.  
Pay attention not to remove both the lock slotted set screw and the adjusting slotted set screw.  
In order to protect the adjusting screw when lock, a small part is inserted between those two slotted set screws.  
If removed the set screw(s), this small part can drop and lose.
- (2) Extend the double action electrode toward the top and adjust it to the top of the cap tip of the arm side.
- (3) Fasten the clamp lever and fix the arm.
- (4) Fasten the adjusting slotted set screw until it touches the pin of arm adaptor.
- (5) Fasten the lock slotted set screw and lock the adjusting slotted set screw.



### Up and down directions

Loosen two pieces of the M6-hexagon socket head cap screw at the top of the aluminum arm, and move the elbow shank up and down, and then carry out adjustment.

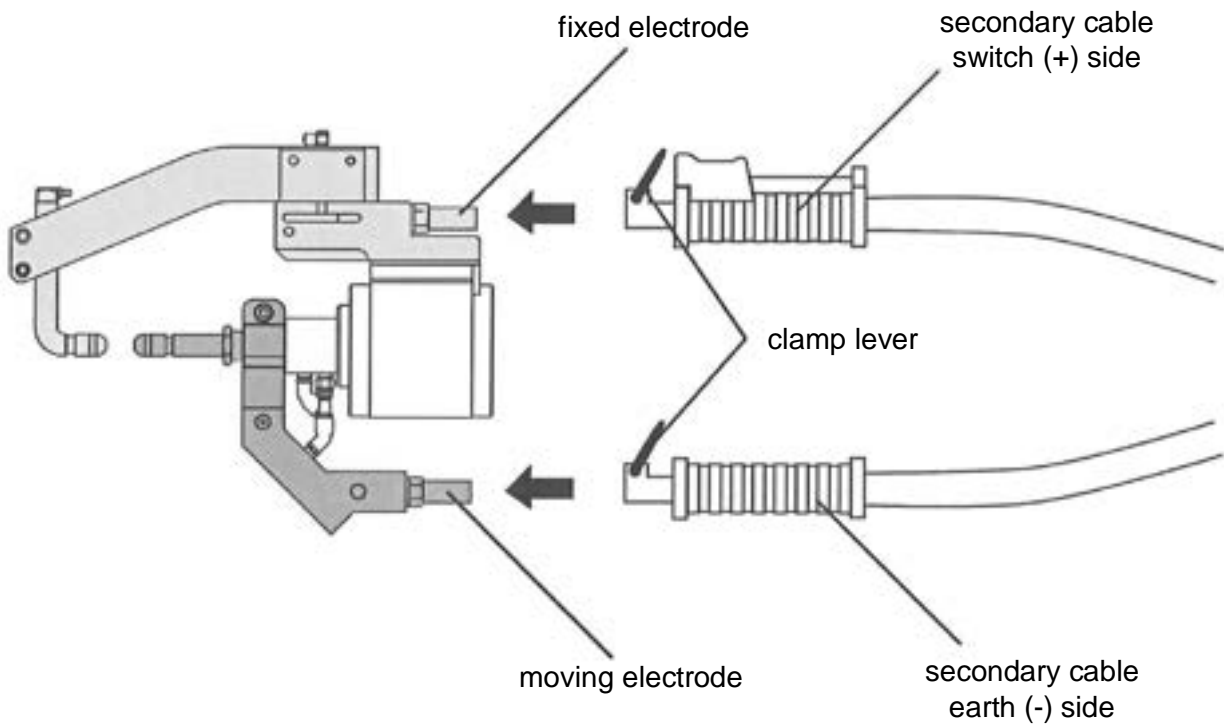


If the top of the cap tip is deviated in the long time use, readjust it.

Adjust "Narrow Arm Assy" as an accessory in the same manner.

## 2. Connecting secondary cable

Connect the secondary cable switch (+) side onto the fixed electrode and tightly fix it with clamp lever. Connect the secondary cable earth (-) side onto the moving electrode and tightly fix it with clamp lever. Make sure the adjustment lever clamp is firmly retightened. Failure to do so may result in damage to the gun.



### 3. Connecting air tube and water tube

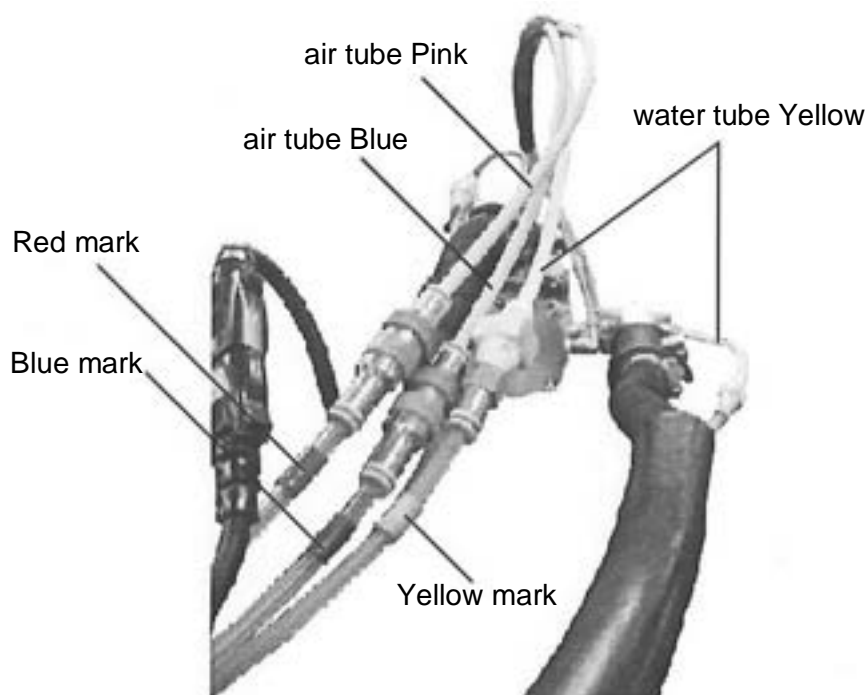
#### Air tube

Connect the blue air tube and pink air tube which are coming from the gun and the other tubes which are coming from secondary cable by using coupler properly.

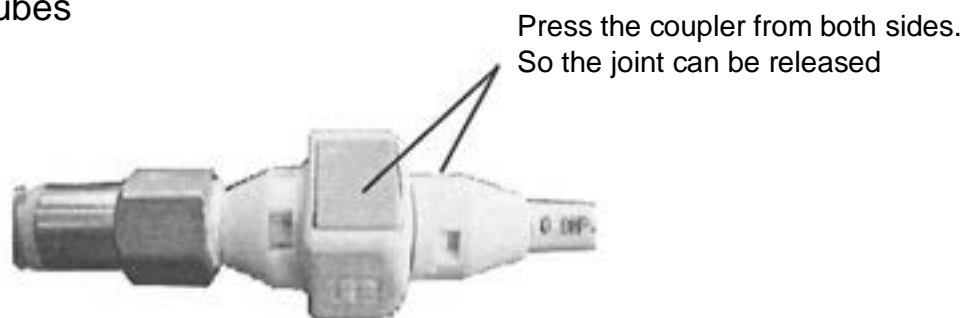
#### Water tube

Connect the two yellow water tubes which are coming from the gun and the other tubes which are coming from secondary cable by using coupler properly.

Insufficient connection between tubes and couplers may cause of trouble of the gun performance or heat damage or defects.



#### Coupler for water tubes



- \* Press the blue buttons on each side together to release the coupler.
- \* Insert the tube into the coupler until it clicks.

## 4 . Using "Narrow Arm Assy"

"Narrow Arm Assy" is used mainly for spot welding in the part of rear and fender components.  
For installation, refer to "V. Way to use, 1. Checking the top of cap tip" on this manual

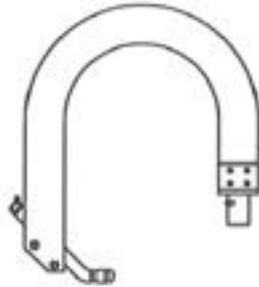
## 5. Using "U Arm" (Option)

"U Arm" (Option) for spot welding in the back panels or for other portions of which welding point is deep inside.

For installation, refer to "V. Way to use, 1. Checking the top of cap tip"

The maximum welding force is the value when using a new cap tip.

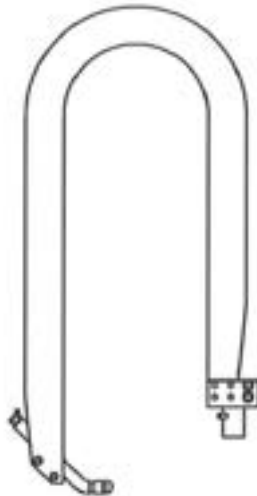
YAU-930(W)



maximum withstanding welding force = 250daN

It is used in the place where the welding point is deep inside.

YAU-960(W)



maximum withstanding welding force = 120daN

It is used in the place particularly where the welding point is deep inside.

YAU-955S



maximum withstanding welding force= 250daN

It is used in the place where the welding point is deep inside, in addition, when requiring enough welding force.

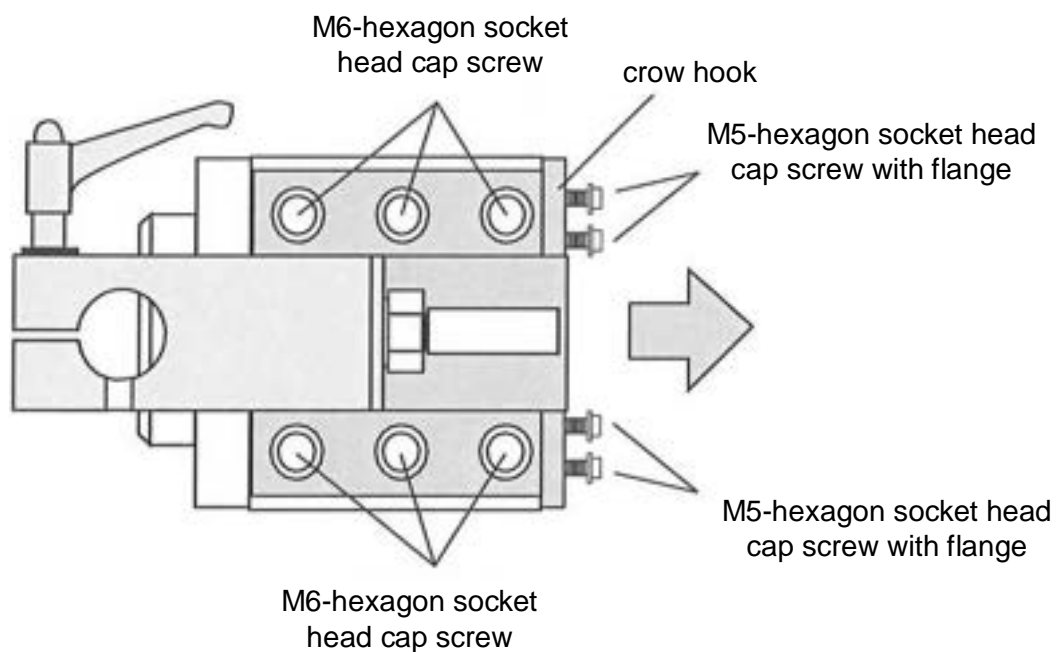
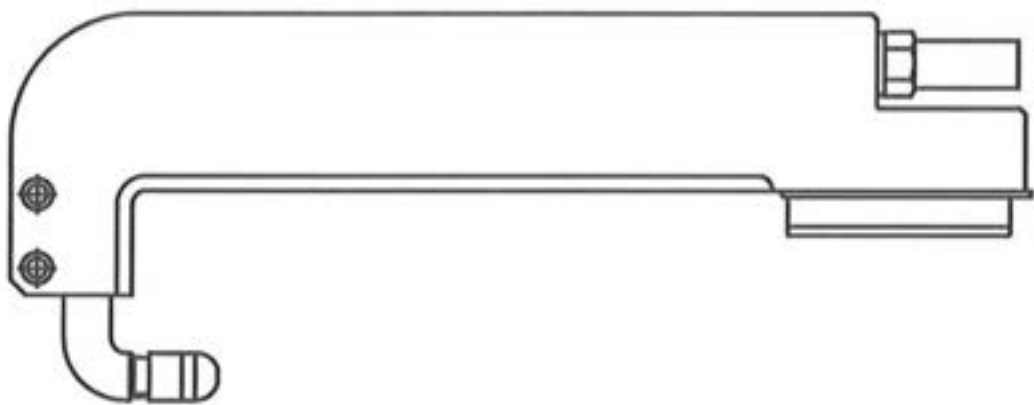
## 6. Using high pressure arm (Option)

This is used when the standard arm is. in lack of pressure.

Loosen six pieces of M6-hexagon socket head cap screw that fix the split fastening arm block at the head of air cylinder and remove it sliding backward.

Set the high pressure arm sliding it from the front, and attach the arm hook with an M5 button CAP, and then firmly fix it with six pieces of M6-hexagon socket head cap screw.

In this work, pay attention not to lose the semi-transparent resin wave washers and metal plain washers that are attached to the hexagon socket head cap screw.



## Adjusting application pressure (References)

Resistance welding (Spot welding) decides the welding strength based on the relative relations of electric current value, electric conduction time, application pressure, and conductive electric current density with the shape of the head of cap tip. When the electric current value becomes high, the application pressure must be increased, and on the contrary, if the electric current value is low, the application pressure must be decreased.

Below table shows the relative relations.

Adjust the air pressure appropriately referring to this table, before your practical welding work.

DC inverter / 60Hz

Panel thickness	A-class conditions				B-class conditions				C-class conditions			
	Welding time	Welding force	Air pressure	Current value	Welding time	Welding force	Air pressure	Current value	Welding time	Welding force	Air pressure	Current value
mm	sec	daN	MPa	A	sec	daN	MPa	A	sec	daN	MPa	A
0.4	0.08	110	0.22	4,800	0.17	70	0.14	4,200	0.26	40	0.08	3,200
0.5	0.10	130	0.26	5,400	0.18	85	0.17	4,600	0.27	45	0.09	3,600
0.6	0.12	144	0.29	6,000	0.22	95	0.19	5,000	0.31	50	0.10	4,000
0.8	0.13	182	0.36	7,200	0.25	120	0.24	6,000	0.34	60	0.12	4,600
1.0	0.17	216	0.43	8,200	0.33	145	0.29	6,600	0.42	70	0.14	5,000
1.2	0.21	259	0.52	9,000	0.38	170	0.34	7,000	0.47	80	0.16	5,600
1.6	—	—	—	—	0.43	230	0.46	8,200	0.52	110	0.22	6,400
2.0	—	—	—	—	0.48	265	0.53	9,500	0.57	145	0.29	7,200
2.4	—	—	—	—	0.55	350	0.70	10,600	0.62	200	0.40	8,200

Reference: RWMA (Resistance Manufacturers Association)

- (1) Objective welding material shown in this table is presumed to be mild steel that is washed in acid and is lubricated slightly, of which tensile strength is equivalent to 300-320 MPa
- (2) Surface conditions of the objective welding material here are presumed to be free from black scale layer, grease, acid substances, and paint.
- (3) When welding two plates in different thickness, the thickness condition is set at the thinner plate
- (4) In the case of carbon steel of which carbon volume exceeds 0.5%, the thickness condition is set at the thinner plate.

\* For details, refer to the instruction manual of the welding machine.

## Precautions in handling

1. Do not use exceeding the maximum input air pressure.  
The maximum air pressure of this product is 0.9 MPa (9.2kgf/cm<sup>2</sup>).  
If used exceeding the application range, it may cause of malfunctions or accidents.
2. Do not use exceeding the maximum withstand pressure.  
If used exceeding this limited range, the arm is broken and also injury is induced, that is very dangerous.  
The applicable maximum withstand pressure is prescribed for each arm that is used in this product.
3. Use, circulating the cooling water without fail.  
If used not circulating the cooling water, the gun is heated and it causes malfunctions  
\* When the gun is still heated even after use, circulate the cooling water to cool.
4. Firmly fix the arm.  
Fix the arm by firmly tightening the clamp lever, and proceed to the work.  
If conduct the welding work not tightening the clamp lever, this product is broken and also injury is induced, that is very dangerous.
5. Do not damage the remote switch cord and do not pull it strongly.  
Such conduct causes wire disconnections and malfunctions in the switch.
6. In the case of excessive heating due to the long-time and continued spot welding, interrupt the work once.  
Circulate the cooling water letting the power on, and make sure that this device is cooled down sufficiently, and then resume the work.



## Troubleshooting

In the case of trouble or unusual operation, turn off the power switch, unplug the power plug from the power outlet, and consult the shop you purchased or us.

As for the below trouble, check the points as indicated before consulting your shop or us.

### The power lamp does not light even when the power switch is turned on.

Isn't the power plug disconnected from the power outlet?

Is the breaker of the power facility switched on?

### The welding machine does not run even when the remote switch is pressed.

Isn't the junction plug with the socket disconnected at the top of the secondary cable?

Isn't the connector that connects the switch cable with the main unit unplugged?

Check the above, and if still remains trouble and malfunction, then please contact your shop or us.



### Caution

When checking the connection of connectors or carrying out measures, switch off the power without fail, and unplug the primary cable from the power outlet.



### Danger

Do not remove the cover of this product and never carry out internal treatments inside the machine. Handling inside the machine neglecting this warning can cause the risk of electric shock involving death or induce other malfunctions of the machine that may lead to an accident causing fire.

## Term of Warranty

1. The product comes with a guarantee card as a separate attachment.  
Confirm the "Name of distributor and date of purchase" on it when received from the distributor and duly keep it after through reading.
2. The guarantee period is one year from the date of purchase. In the case of machine trouble in this period, in spite of the proper operating conditions, the distributor carries out "Free repair" based on the guarantee written articles.
3. Repair after the guarantee period will be implemented with "Paid repair" replying to your request, provided repair can maintain the functions. Thus please contact your shop or us. Here, before you inquire repair works, refer to "7. About malfunctions and countermeasures" and recheck it.



### Caution

This product has been designed providing the indoor use. Accidents or malfunctions caused by the outdoor use are excluded from this guarantee.

## Specifications

model	name
Model	YA-9
Name	GIGA PRESS
Power source	Compressed air
Air pressure	Under 0.9MPa ( 9.2Kkg/cm <sup>2</sup> )
Cylinder diameter	80mm
Stroke	40mm
Welding force	450daN( 450kgf )
Dimensions	L250mm x H155mm x W90mm
Body diameter	65mm
Net weight	4.5kg ( included arm )

## Standard accessories, Option

### Standard accessories

model	name	quantities
YA-9	GIGA PRESS	1
H-900	Aluminum arm (M)	1
H-901	Aluminum arm (S)	1
H-926	Straight shank 13 (water cool)	1
H-927	Narrow shank (water cool)	1
H-526	Elbow shank 13 (water cool)	1
CR-1	Cap tip remover ( 13)	1
WK-1	Wonder korn	1
	DR cap tip	4
	Base tip	2

### Option

model	name	quantities
H-929	Straight shank 16 (water cool)	1
H-528	Elbow shank 16 (water cool)	1
H-900S	High pressure arm	1
YAU-930W	U arm 300 mm (water cool)	1
YAU-960W	U arm 585 mm (water cool)	1
YAU-955S	U arm 550 mm for high welding pressure (water cool)	1
CR-2	Cap tip remover ( 16)	1

