



OWNER'S MANUAL
FOR
WIRE FEEDER

MODEL: CMAW-7401 1U30009

DO NOT DESTROY

IMPORTANT: Read and understand the entire contents of this manual, with special emphasis on the safety material throughout the manual, before installing, operating, or maintaining this equipment. This equipment and this manual are for use only by persons trained and experienced in the safety operation of welding equipment. Do not allow untrained persons to install, operate or maintain this equipment. Contact your distributor if you do not fully understand this manual.

DAIHEN Corporation WELDING PRODUCTS DIVISION

January 1, 2013

Upon contact, advise MODEL and MANUAL NO.

Notice : Machine export to Europe

This product does not meet the requirements specified in the EC Directives which are the EU safety ordinance that was enforced starting on January 1, 1995. Please make sure that this product is not allowed to bring into the EU after January 1, 1995 as it is.

The same restriction is also applied to any country which has signed the EEA accord.


Please ask us before attempting to relocate or resell this product to or in any EU member country or any other country which has signed the EEA accord.


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1. SAFETY INFORMATION

The following safety alert symbols and signal words are used throughout this manual to identify various hazards and special instructions.


 WARNING	WARNING gives information regarding possible personal injury or loss of life.
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 CAUTION	CAUTION refers to minor personal injury or possible equipment damage.
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2. ARC WELDING SAFETY PRECAUTIONS


 WARNING	
ARC WELDING can be hazardous.	
1. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. Be sure to: <ul style="list-style-type: none">• Keep children away.• Keep pacemaker wearers away until consulting a doctor.	
2. Read and understand the summarized safety information given below and the original principal information that will be found in the PRINCIPAL SAFETY STANDARDS.	
3. Have only trained and experienced persons perform installation, operation, and maintenance of this equipment.	
4. Use only well maintained equipment. Repair or replace damaged parts at once.	
ARC WELDING is safe when precautions are taken.	


2. ARC WELDING SAFETY PRECAUTIONS (continued)

	ELECTRIC SHOCK can kill.
<p>Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuits are electrically live whenever the output is on. The power line and internal circuits of this equipment are also live when the line disconnect switch is on. When arc welding all metal components in the torch and work circuits are electrically live.</p> <ol style="list-style-type: none">1. Do not touch live electrical parts.2. Wear dry insulating gloves and other body protection that are free of holes.3. Insulate yourself from work and ground using dry insulating mats or covers.4. Be sure to disconnect the line disconnect switch before installing, changing torch parts or maintaining this equipment.5. Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.6. Keep all panels and covers of this equipment securely in place.7. Do not use worn, damaged, undersized, or poorly spliced cables.8. Do not touch electrode and any metal object if POWER switch is ON.9. Do not wrap cables around your body.10. Turn off POWER switch when not in use.	


	ARC RAYS can burn eyes and skin: FLYING SPARKS AND HOT METAL can cause injury. NOISE can damage hearing.
<p>Arc rays from the welding process produce intense heat and strong ultraviolet rays that can burn eyes and skin.</p> <p>Noise from some arc welding can damage hearing.</p> <ol style="list-style-type: none">1. Wear face shield with a proper shade of filter (See ANSI Z 49.1 listed in PRINCIPAL SAFETY STANDARDS) to protect your face and eyes when welding or watching a welder work.2. Wear approved safety goggles. Side shields recommended.3. Use protective screens or barriers to protect others from flash and glare: warn others not to look at the arc.4. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection.5. Use approved earplugs or earmuffs if noise level is high. Chipping and grinding can cause flying metal. As welds cool, they can throw off slag.6. Wear approved face shield or safety goggles. Side shields recommended.7. Wear proper body protection to protect skin.	


2. ARC WELDING SAFETY PRECAUTIONS (continued)



	WELDING can cause fire and explosion.
<p>Sparks and spatter fly off from the welding arc. The flying sparks and hot metal, spatter, hot base metal, and hot equipment can cause fire and explosion. Accidental contact of electrode or welding wire to metal object can cause sparks, overheating, or fire.</p> <ol style="list-style-type: none">1. Protect yourself and others from flying sparks and hot metals.2. Do not weld where flying sparks can strike flammable material.3. Remove all flammables within 10m (33ft) of the welding arc. If this is not possible, tightly, cover them with approved covers.4. Be alert that welding sparks and hot metals from welding can easily pass through cracks and openings into adjacent areas.5. Watch for fire, and keep a fire extinguisher nearby.6. Be aware that welding on a ceiling, floor, bulkhead, or partition can ignite a hidden fire.7. Do not weld on closed containers such as tanks or drums.8. Connect power cable for base metal as close to the welding area as possible to prevent the welding current from traveling along unknown paths and causing electric shock and fire hazards.9. Remove stick electrode from holder or cut off welding wire at contact tip when not in use.10. Does not use the welding power source for other than arc welding.11. Wear oil-free protective garments such as leather gloves, a heavy shirt, cuffless trousers, boots, and a cap.12. A loose cable connection can cause sparks and excessive heating.13. Tighten all cable connections.14. When there is an electrical connection between a work piece and the frame of wire feeder or the wire reel stand, are may be generated and cause damage by a fire if the wire contacts the frame or the work piece.	

	FUMES AND GASES can be hazardous to your health.
<p>Arc welding produce fumes and gases. Breathing these fumes and gases can be hazardous to your health.</p> <ol style="list-style-type: none">1. Keep your head out of the fumes. Do not breathe the fumes.2. Ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.3. If ventilation is poor, use an approved air-supplied respirator.4. Read the Material Safety Data Sheets (MSDS) and the manufacturer's instructions on metals, consumables, coatings, and cleaners.5. Do not weld or cut in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.6. Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Shielding gases used for welding can displace air causing injury or death. Be sure the breathing air is safe.	

2. ARC WELDING SAFETY PRECAUTIONS (continued)

	CYLINDER can explode if damaged.
<p>A shielding gas cylinder contains high-pressure gas. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.</p> <ol style="list-style-type: none">1. Use only correct shielding gas cylinders, gas regulator, hoses, and fittings designed for the specific application; maintain them in good condition.2. Protect compressed gas cylinders from excessive heat, mechanical shock, and arcs.3. Keep the cylinder upright and securely chained to a stationary support or a rack to prevent falling or tipping.4. Keep cylinders away from any welding or other electrical circuit.5. Never touch cylinder with welding electrode.6. Read and follow instructions on compressed gas cylinders, associated equipment, and the CGA publication P-1 listed in PRINCIPAL SAFETY STANDARDS.7. Turn face away from valve outlet when opening cylinder valve.8. Keep protective cap in place over valve except when gas cylinder is in use or connected for use.9. Do not disassemble or repair the gas regulator except for the person authorized by the manufacturer of them.	

 WARNING	
<ul style="list-style-type: none">● Do not alter or remodel our products.● You may get injured or have your equipment damaged because of fire, failure or malfunction caused by altering or remodeling the product.● The warranty does not cover any altered or remodeled products.	

		Rotating parts may cause injuries. Be sure to observe the following.
<p>If hands, fingers, hair or clothes are put near the fan's rotating parts or wire feeder's feed roll, injuries may occur.</p> <ol style="list-style-type: none">1. Do not use this equipment if the case and the cover are removed.2. When the case is removed for maintenance/inspection and repair, certified or experienced operators must perform the work. Erect a fence, etc. around this equipment to keep others away from it.3. Do not put hands, fingers, hair or clothes near the rotating fans or wire feed roll.		

2. ARC WELDING SAFETY PRECAUTIONS (continued)



ARC WELDING work areas are potentially hazardous.

FALLING or **MOVING** machine can cause serious injury.

1. When hanging the welding power source by a crane, do not use the carrying handle.
2. Put the welding power source and wire feeder solidly on a flat surface.
3. Do not pull the welding power source across a floor laid with cables and hoses.
4. Do not put wire feeder on the welding power source.
5. Do not put the welding power source and wire feeder where they will pit or fall.

WELDING WIRE can cause puncture wounds.

1. Do not press gun trigger until instructed to do so.
2. Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

PRINCIPAL SAFETY STANDARDS

Arc welding equipment – Installation and use, Technical Specification IEC 62081, from International Electro technical Commission

Arc welding equipment Part 1: Welding power sources IEC 60974-1, from International Electro technical Commission

Safety in Welding and Cutting, ANSI Standard Z49.1, from American Welding Society.

Safety and Health Standards, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office.

Recommended Practices for Plasma Arc Cutting, American Welding Society Standard AWS C5.2, from American Welding Society.

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, American Welding Society Standard AWS F4.1, from American Welding Society.

National Electrical Code, NFPA Standard 70, from National Fire Protection Association.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association.

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales.

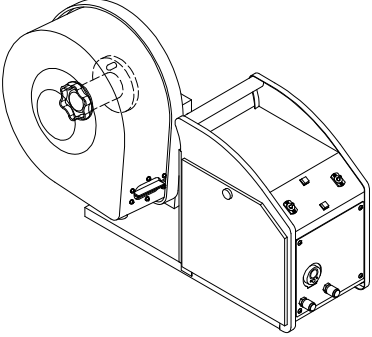
Safe Practices For Occupation And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute.

Cutting And Welding Processes, NFPA Standard 51B, from National Fire Protection Association.

NOTE: The codes listed above may be improved or eliminated. Always refer to the updated codes.

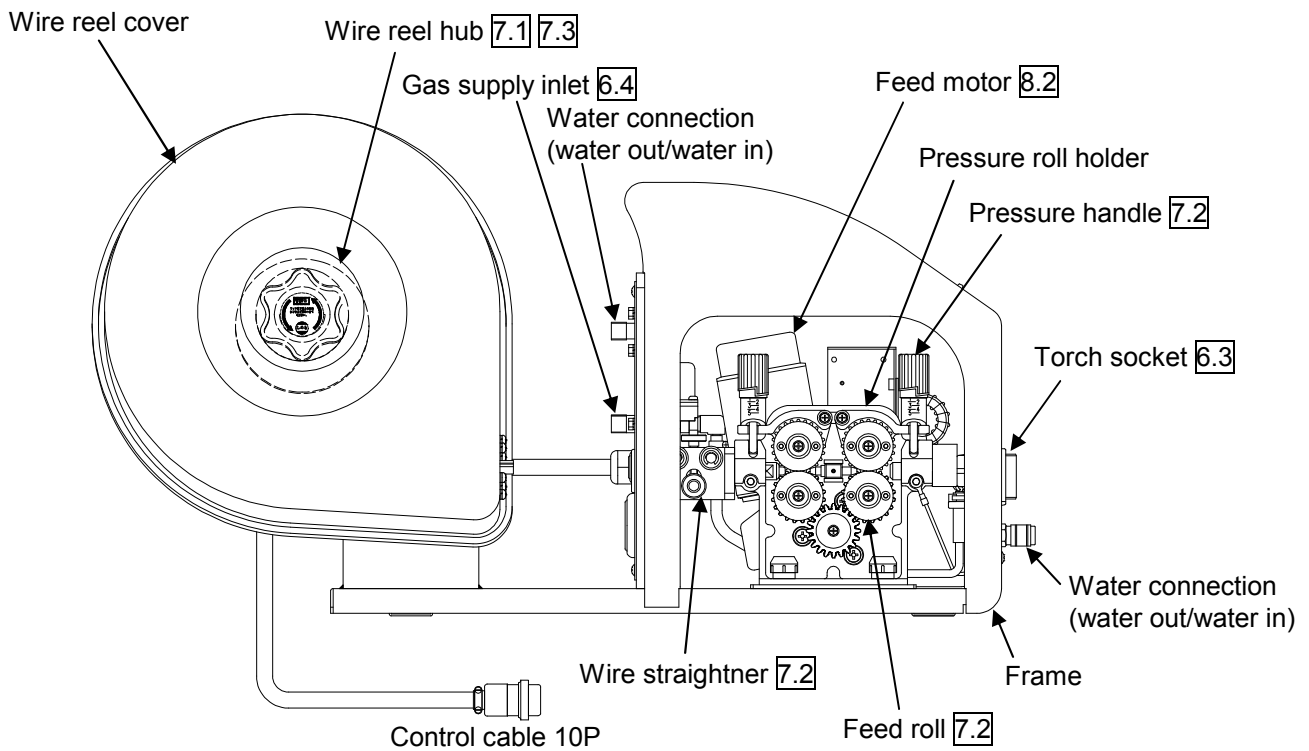
3. CHECKING OF QUANTITY OF THE ACCESSORIES

Check the quantity of parts when opening the package.

Wire feeder		Accessory		
	No.	Description	Specification	Quantity
	①	Gas hose (3m)	K5430A00	1
	②	Hose cover	U1997C03	2
	③	Water hose (1.7m)	U2879J00	2
	④	Outlet guide (1.6)	U5207J04	1




4. NAME OF PARTS

Refer to the section indicated in □ for details.






5. CARRYING AND INSTALLING OF THE WIRE FEEDER

5.1 Transportation

 WARNING	
Observe the following to avoid damage to the wire feeder or physical injury when carrying the equipment.	
	<ul style="list-style-type: none"> ● Do not touch the charging parts inside or outside the wire feeder. ● Disconnect the wire feeder from the welding power source by turning off the line disconnect switch in the power box to avoid an electric shock before carrying the equipment.
	<ul style="list-style-type: none"> ● Be sure to detach the wire reel from the wire feeder before lifting the equipment to the high places by a crane.

5.2 Installation

 WARNING	
When installing the wire feeder, follow the instructions below to avoid occurrence of fires during welding and physical damage by fume gas.	
	<ul style="list-style-type: none"> ● Do not place the welding machine near combustible materials and flammable gas. ● Remove combustible materials to prevent dross coming into contact with combustible objects. If that not possible, cover them with noncombustible covers.
	<ul style="list-style-type: none"> ● To avoid gas poisoning and danger of suffocation, wear a gas mask or adequately ventilate when using the welding machine in the place regulated by a local law. ● To prevent disorder or poisoning caused by fume, wear a gas mask or weld at a partial exhaust facility approved by the local regulation. ● Adequately ventilate or wear a gas mask when using the welding machine in a tank, a boiler, a hold of a ship, because heavier gas such as carbon dioxide or argon gases are drifting there. ● When using the welding machine at a narrow space, comply with a trained supervisor's directions. And be sure to wear a gas mask. ● Do not operate the welding machine near the place where degreasing, cleansing, and spraying are performed. Otherwise, poisonous gas may be generated. ● Be sure to wear a gas mask or adequately ventilate when welding a coating steel plate. (Poisonous gas and fume may be generated.) ● Do not place the welding power source, wire feeder, torch, and control cable (including the extension cable) in an area where the equipment can become wet.

INSTALLATION PLACE

Follow the instructions below when selecting an installation place of the wire feeder.

- Do not install the wire feeder in the indoor place subject to direct sunlight and rain.
- Install the wire feeder in the place where the ambient temperature is between -10 °C and +40 °C.
- Do not place the welding power source, wire feeder, torch, and control cable (including the extension cable) in an area where the equipment can become wet.
- Use a wind shield to protect arc from a wind blow when welding on a windy day.

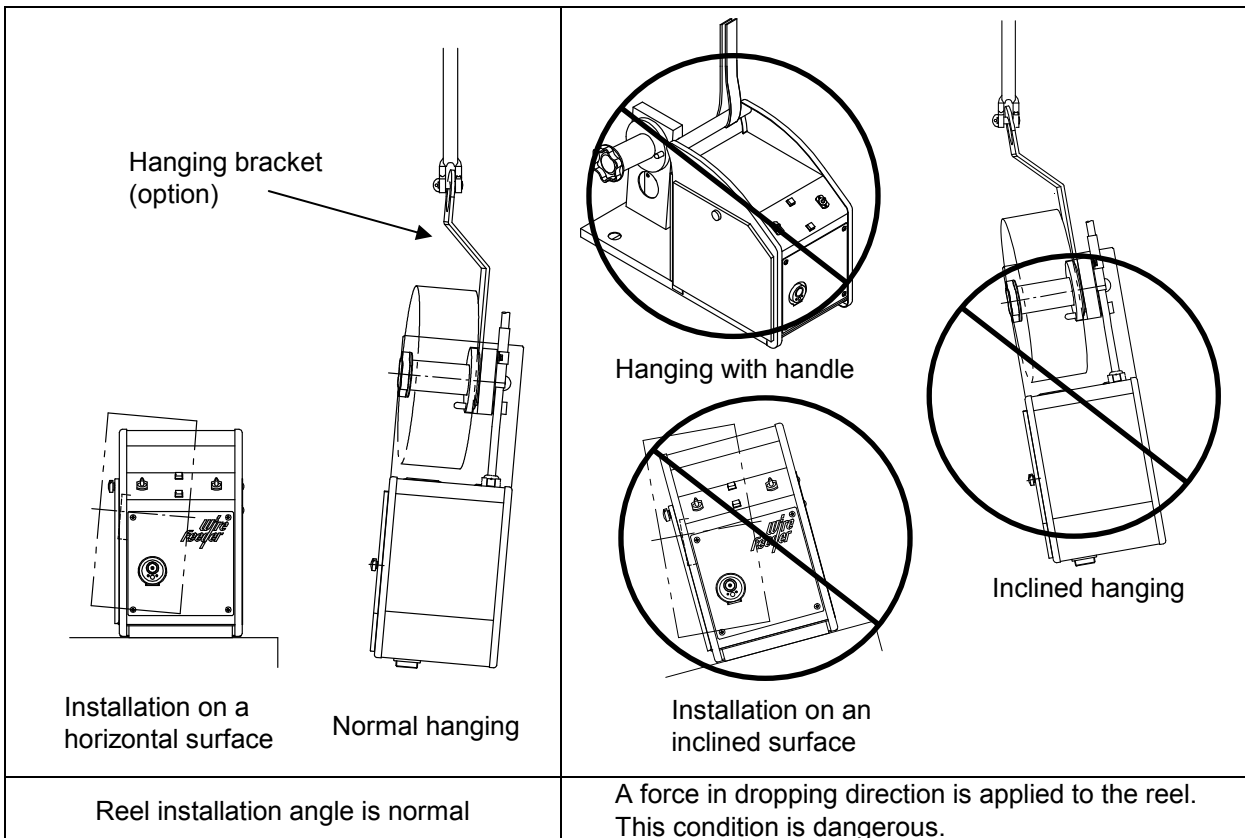
5. CARRYING AND INSTALLING OF THE WIRE FEEDER(continued)





WARNING

When using the wire feeder at a high place or in hung condition, observe the following precautions to prevent serious personal injury due to fallen wire feeder or wire reel.

- For hanging the wire feeder, use a metal hanger structured to prevent falling and hang the wire feeder in a safe and secure manner.
- When hanging the wire feeder, use the hanging bracket (optional bracket of part number U30022Z00).
- Do not hang the wire feeder using the handle of the wire feeder as shown in the diagram below.
- Do not install or hang the wire feeder in a posture, resulting in falling of the reel as shown in the diagram below.
- When installing the wire feeder at a high place, be sure to install and secure it on a horizontal surface.

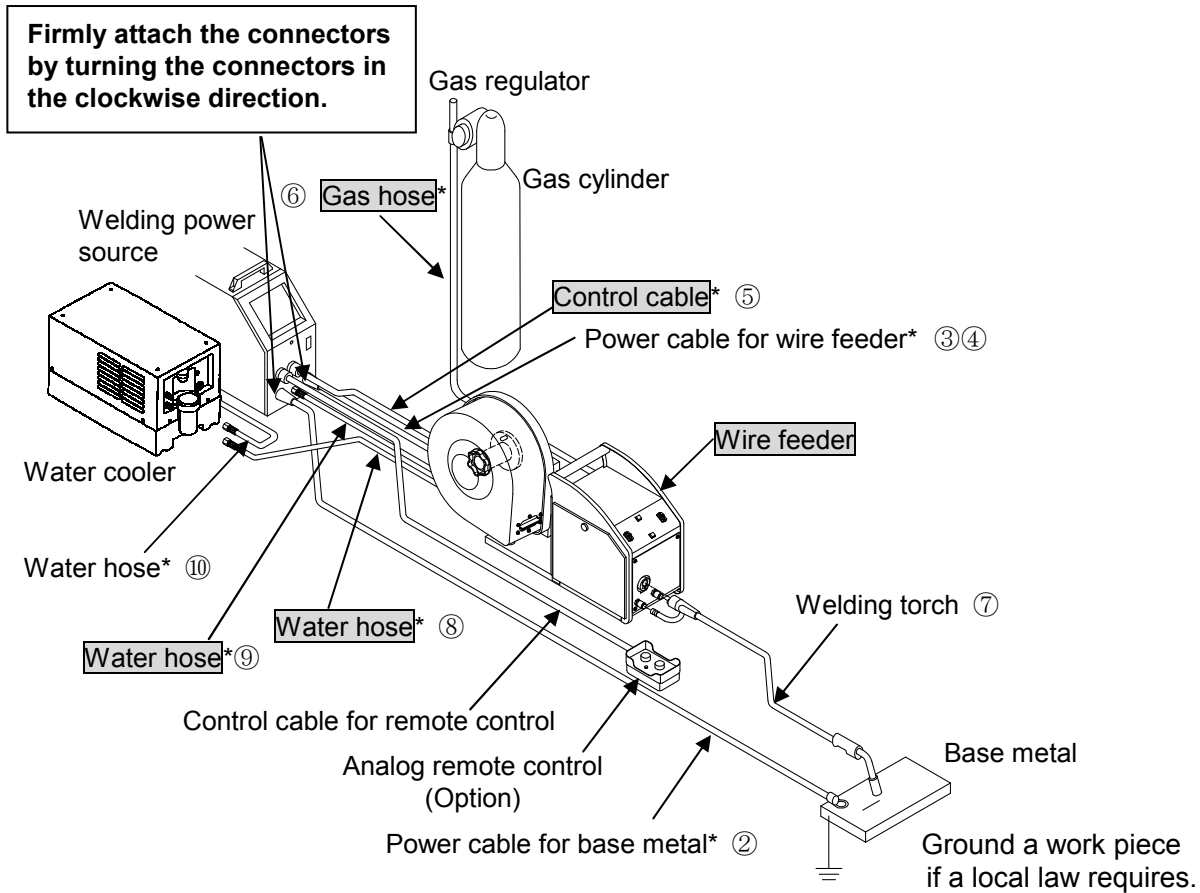


6. CONNECTION PROCEDURE

 CAUTION	
	Follow the instructions below to avoid electric shock.
<p>* Do not touch the charging parts, as this may cause in fatal shock and severe burns.</p> <ul style="list-style-type: none">● Do not touch the charging parts of the welding machine.● Have a qualified electric engineer ground the case of the welding power source and the base metal or jig electrically connected, following a local law.● Disconnect the wire feeder from the welding power source by turning off the line disconnect switch in the power box to avoid an electric shock before grounding the welding power source or base metal and connecting the cables or hoses.● Do not use a cable with lack of capacity or a damaged cable.● Tighten and insulate the connections of cables.● Firmly attach the cover of the welding machine after connection of the cables.● Do not place the welding power source, wire feeder, torch, and control cable (including the extension cable) in an area where the equipment can become wet.	

6. CONNECTION PROCEDURE (continued)

6.1 Connection to the Welding Power Source and to the Gas regulator



NOTE: Standard composition consists of the parts indicated in . Preparation of the parts except the standard composition is required to use the wire feeder.

*Available in 5m, 10m, 15m, and 20m.

Follow the steps below for the connection of the welding power source and the wire feeder.

1. Ground the base metal (if required by local laws or codes).
2. Connect the power cable for base metal between the negative output terminal and the base metal.
3. Attach the power cable for wire feeder to the positive output terminal.
4. After opening the right-side cover of the wire feeder, attach the power cable for wire feeder to the power terminal block. (refer 6.2 for details)
5. Connect the control cable for the wire feeder (10P) into the wire feeder socket on the welding power source.
6. Attach the gas hose to the gas supply inlet on the back side of the wire feeder. (refer 6.4 for details)
7. Connect the welding torch to the wire feeder. (refer 6.3 for details)
8. Connect the water hose to water connection (water out) of the wire feeder back side, and to water connection (water in) of the water cooler.
9. Connect the water hose to water connection (water in) of the wire feeder back side, and to water connection (water out) of the front side of the welding power source.
10. Connect the water hose to water connection (water out) of the water cooler, and to water connection (water in) of the back side of the welding power source.
11. Close the right-side cover of the wire feeder.

6. CONNECTION PROCEDURE (continued)

6.2 Connecting of the Power Cable for Wire Feeder

⚠ WARNING

* Touching the charging parts may cause in fatal electric shock and severe burns.

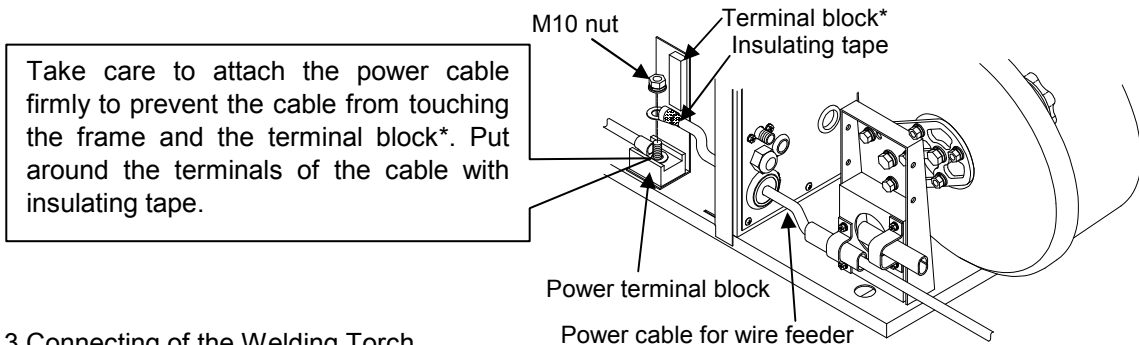
- Do not touch the charging parts of the welding machine.
- Have a qualified electric engineer ground the case of the welding power source and the base metal or jig electrically connected in accordance with a local law.
- Disconnect the wire feeder from the welding power source by turning off the line disconnect switch in the power box to avoid an electric shock before the welding power source or base metal and connecting the cables or hoses.
- After connecting the cables, cover the power source with the cover or case.
- When using the welding machine in such a humid environment as construction site, on the steel plate, or on steel structure, install a leakage breaker.

⚠ CAUTION

- Use the proper power cable that matches the welding current.

Applicable current (Rated current)	Cable thickness
200 A	38mm ² or more
350 A*	60mm ² or more
500 A	80mm ² or more

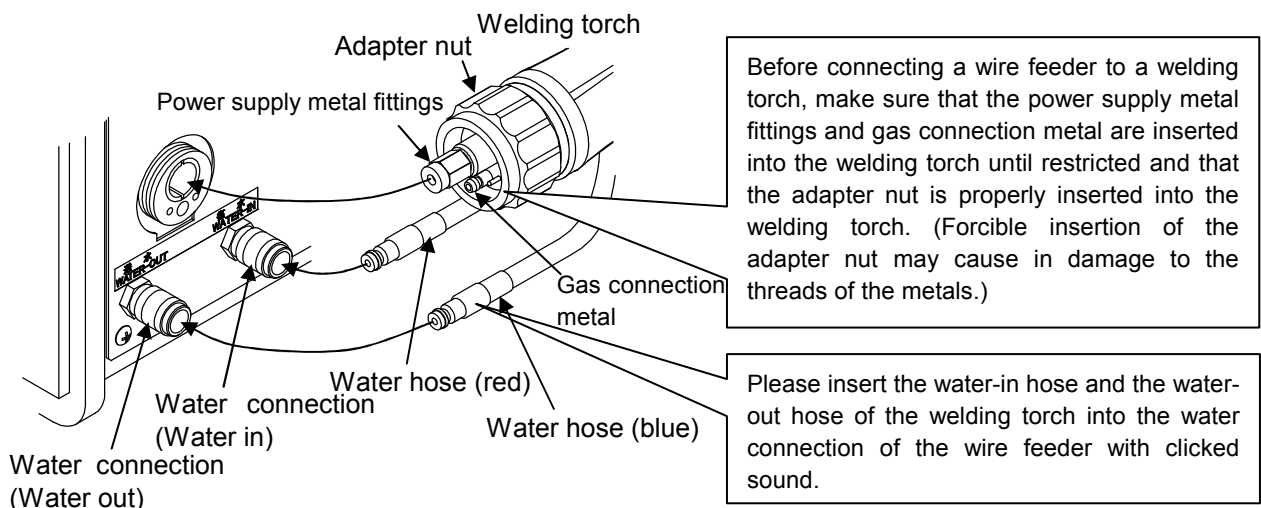
* When performing pulse welding using the welding power source with 350 A welding current and 17m or more cable, use the thicker cable by one rank.



6.3 Connecting of the Welding Torch


⚠ CAUTION

- Ensure that the torch connector is firmly attached. If the connector is not fully inserted, there may be a risk of fire, burns, and product damage.
- Water might leak when water out/in hose of the welding torch is not been properly inserted.

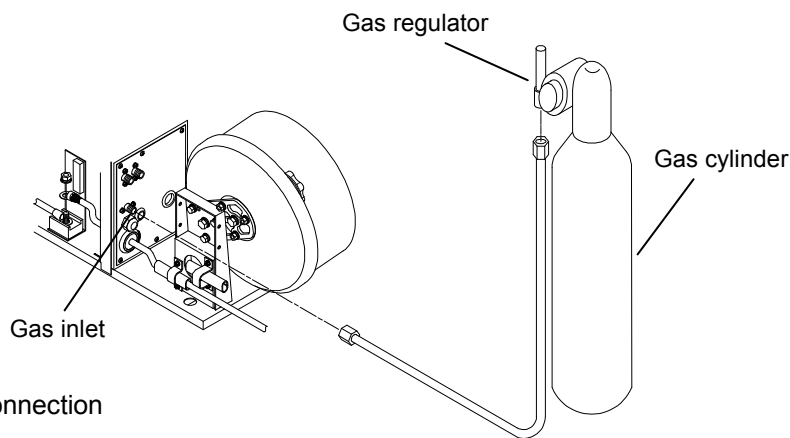


6. CONNECTION PROCEDURE (continued)

6.4 Connecting of the Gas Hose

⚠ WARNING	
	<ul style="list-style-type: none">● You may suffer from danger of suffocation caused by lack of oxygen when shield gas keeps flowing in a closed place. Be sure to turn off the shield gas at the main when the welding power source is not in use.

⚠ WARNING	
<ul style="list-style-type: none">● Be sure to connect the gas hose after fixing to the stand, as physical injuries may cause from falling down of gas cylinder.● Attach a proper gas regulator to the gas cylinder. Failure to observe the demand may cause in physical injuries. The gas regulator for high pressure gas must be used.	



How to Make Gas Connection

1. Firmly connect the gas hose to the gas supply inlet located on the rear side of the wire feeder.
2. Mount the gas regulator on the gas cylinder by tightening the nut for attaching the gas cylinder .
3. Connect the gas hose to the gas supply outlet on the gas regulator.

NOTE: Firmly tighten the nuts using a monkey wrench, etc. to connect the gas hose and gas regulator.

7. WELDING PREPERATION

7.1 Fitting of Wire

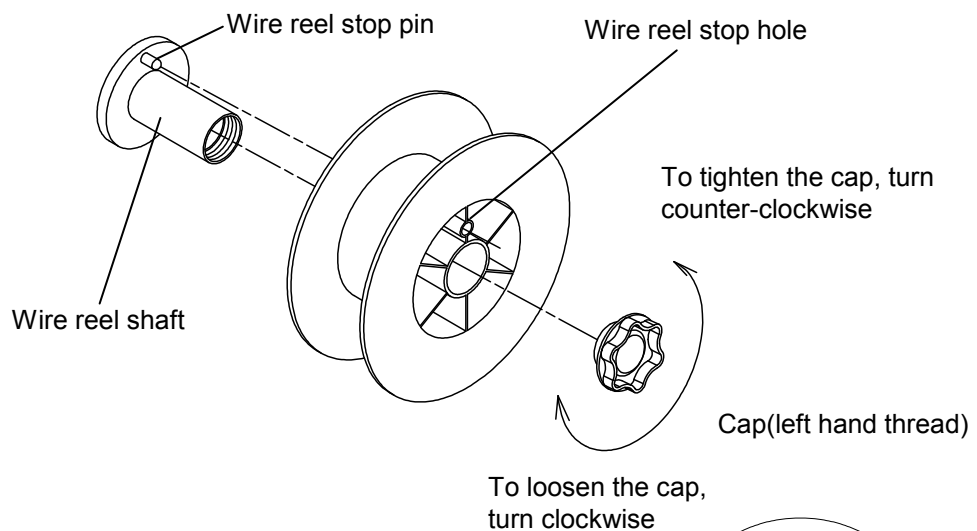
WARNING

- When the wire is set on the wire reel shaft, fully tighten the cap to prevent falling.
- In case a breakage, crack or deformation is found in the wire reel shaft or cap, do not use but replace it.

Fitting of Wire

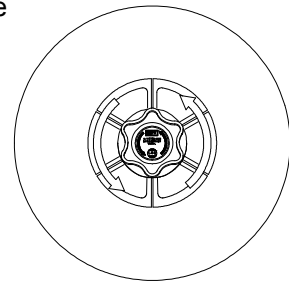
1. Turn the cap clockwise to loosen it.
2. Detach the cap from the wire reel shaft.
3. Mount the wire reel on the wire reel shaft.

NOTE: When installing the wire reel shaft, be sure to insert the stopper pin of the wire reel shaft into the wire reel stopper pin hole.

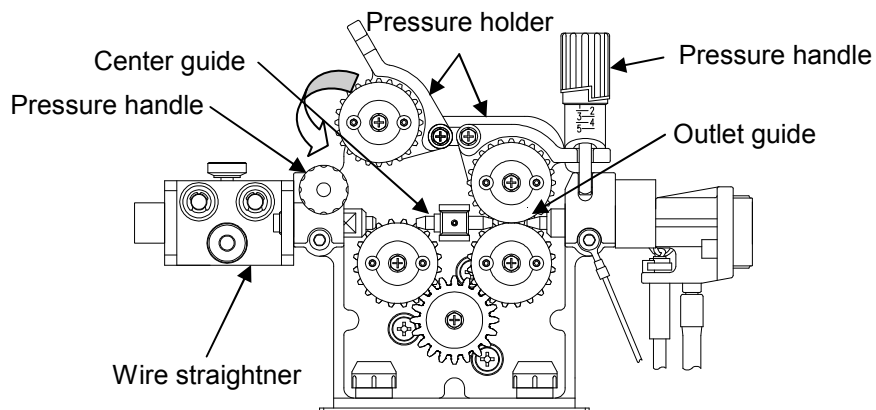


4. Turn the cap counter-clockwise to tighten it.

To tighten the cap, turn counter-clockwise



5. Bring down the pressure handle, then raise the pressure roll holder.
6. After pulling out the wire, thread it from the pilot to outlet guide through the center guide.
7. Return the pressure reel holder first, the pressure handle.



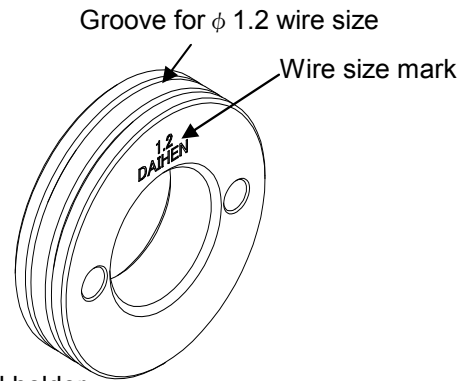
7. WELDING PREPERATION (continued)

7.2 Mounting of the Feed Roll

Confirming of the wire size marked on the feed roll

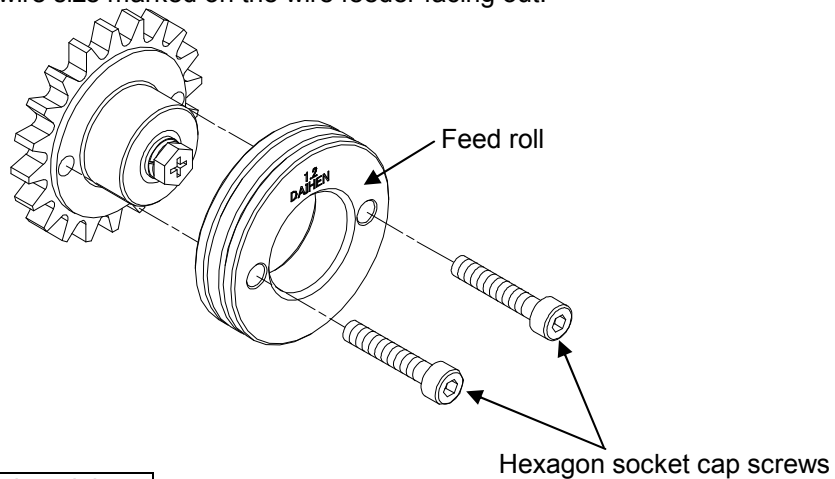
Use the proper feed roll for the wire size.

The feed roll of ϕ 1.2 wire size is mounted on the CMAW-7401 wire feeder.



Replacing of the feed roll

1. Remove the hexagon socket cap screws fixing the feed roll.
2. Bring down the pressure handle, and then lift the pressure roll holder.
3. Separate the feed roll from the wire feeder by pulling out the feed roll toward you.
4. Mount the feed roll, with the wire size marked on the wire feeder facing out.



Adjusting of the wire pressure and straightner

- Set to the proper wire pressure for the wire type by turning the pressure handle.
- The numeral on the pressure scale set with the right pressure handle should be correspond to the one set with the left pressure handle.

Recommended wire pressure adjustment

	Wire diameter		Pressure handle scale	Wire straightner scale
	(ϕ mm)	(inch)		
Hard aluminum AL/MG (HARD)	1.6	1/16	2-3	2-3
	1.2	3/64	1-2	3-4
	1.0	0.035	1-2	4-5
Soft aluminum AL/PURE (SOFT)	1.6	1/16	2-3	2-3
	1.2	3/64	1-2	4-5
Mild steel Stainless steel Brazing	1.6	1/16	3-4	(2-3)
	1.4	0.055	3-4	(3-4)
	1.2	0.045	2-3	(3-4)
	1.0	0.040	2-3	(4-5)
	0.9	0.035	2-3	(4-5)
	0.8	0.030	1-2	(4-5)
	0.6	0.023	1-2	(4-5)

*Applicable wire diameter of brazing wire is ϕ 0.8, 0.9, 1.0 and 1.2.

*Refer to section 8.3 for wire feeding of other than aluminum.

7. WELDING PREPERATION (continued)

7.3 Adjusting of the wire reel hub

After performing inching operation, take care to adjust the brake of the wire reel hub to prevent the wire from going too slack. The bake has been properly adjusted before shipment. Therefore, readjustment of the brake is not required for welding in standard welding conditions.

! WARNING

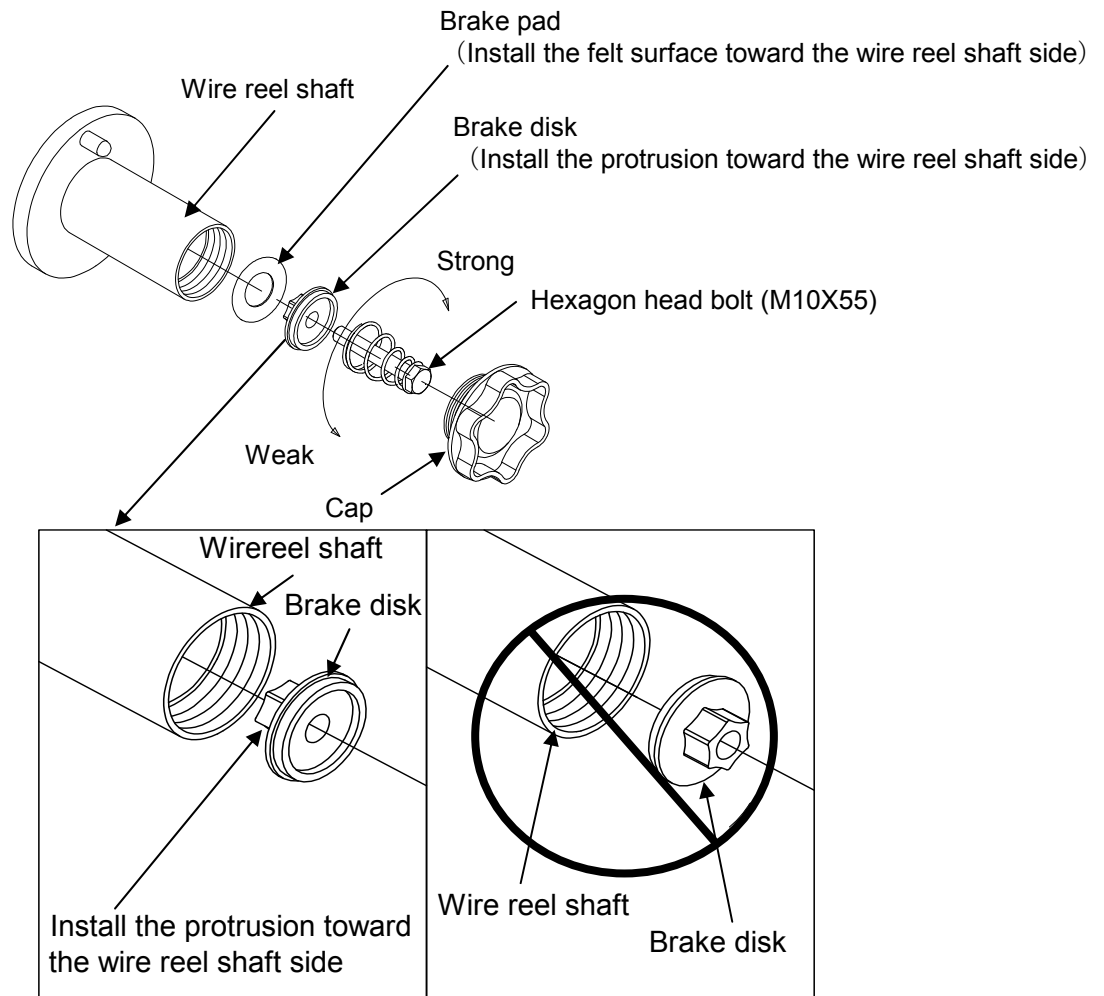
Observe the following precautions to prevent serious personal injury caused by fall of the wire reel at the time of wire reel hub adjustment.

- **Mount the brake pad to the wire reel shaft as illustrated below with care placed to the mounting direction.**
- **Mount the brake disk to the wire reel shaft as illustrated below with care placed to the mounting direction.**
- **In the event that the brake pad and the brake disk are used in wrong directions, the hexagon head bolt comes loose due to rotations of the wire reel shaft and may fall together with the wire reel shaft.**

How to adjust the wire reel hub



1. Detach the cap knob from the wire reel shaft.
2. Adjustment of the brake can be achieved by turning the hexagon bolt (M10).

If the brake pad and brake disk are disengaged by mistake, assemble them by referring to the diagram below.

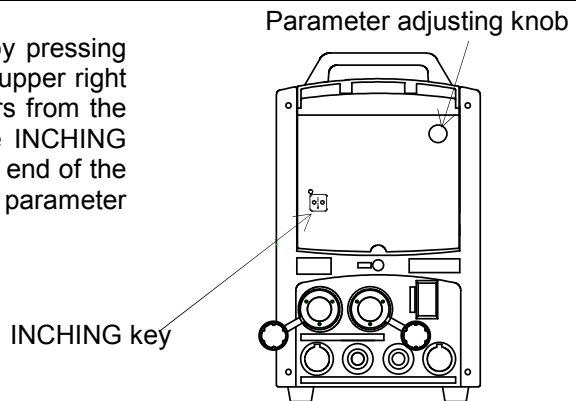


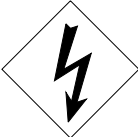

7. WELDING PREPERATION (continued)

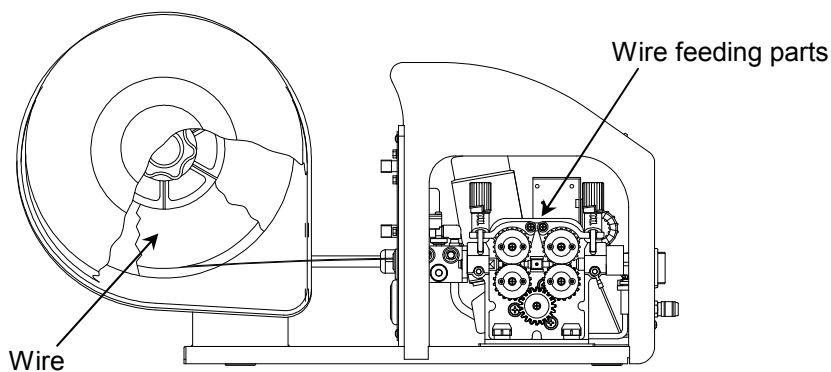
7.4 Feeding Wire Feeding by Performing Inching Operation

! WARNING	
	<ul style="list-style-type: none"> ● Do not look into the tip hole to check for the rate of wire feeding while inching.
! CAUTION	
	<ul style="list-style-type: none"> ● Keep away your hands, fingers, hair or clothes from the rotating parts of the feed roll, etc. to prevent you from being caught into the rotating parts while inching.

After straightening the welding torch, feed the wire by pressing the INCHING key. (the INCHING lamp located at the upper right of the INCHING key lights up). When the wire appears from the end of the torch, press the INCHING key again (the INCHING lamp goes out). Cut the wire at about 10 mm from the end of the torch. Wire feed rate can be adjusted by turning the parameter adjusting knob.



! WARNING	
Touching the charging parts may cause fatal electric shocks and burns.	
	<ul style="list-style-type: none"> ● Never touch the charging parts in the wire and wire feeder. The parts indicated as  in the figure are the charging parts during welding.

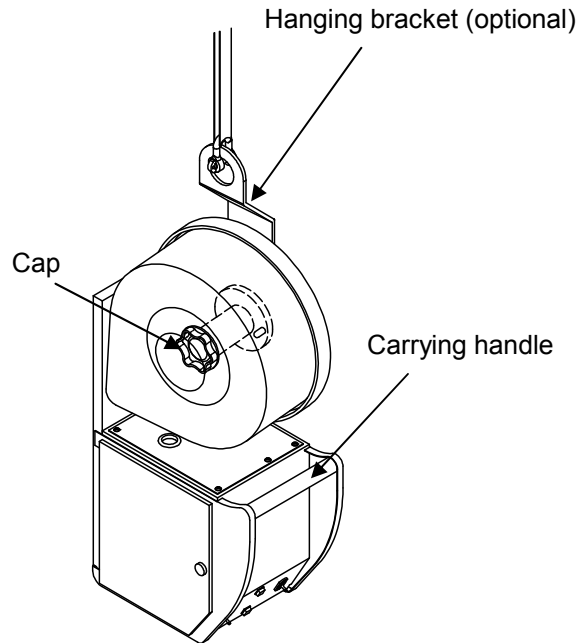


7. WELDING PREPERATION (continued)

7.5 Hanging the Wire Feeder

! CAUTION

- When hanging the wire feeder, firmly fix the cap knob and clamp screw in position to prevent the device from dropping.
- Do not use the carrying handle of the wire feeder to hang the wire feeder.



7. WELDING PREPERATION (continued)

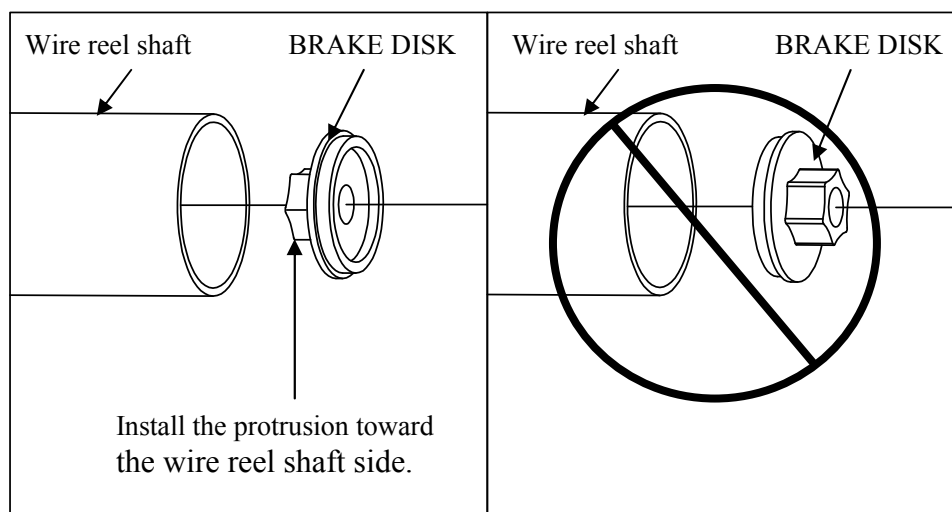
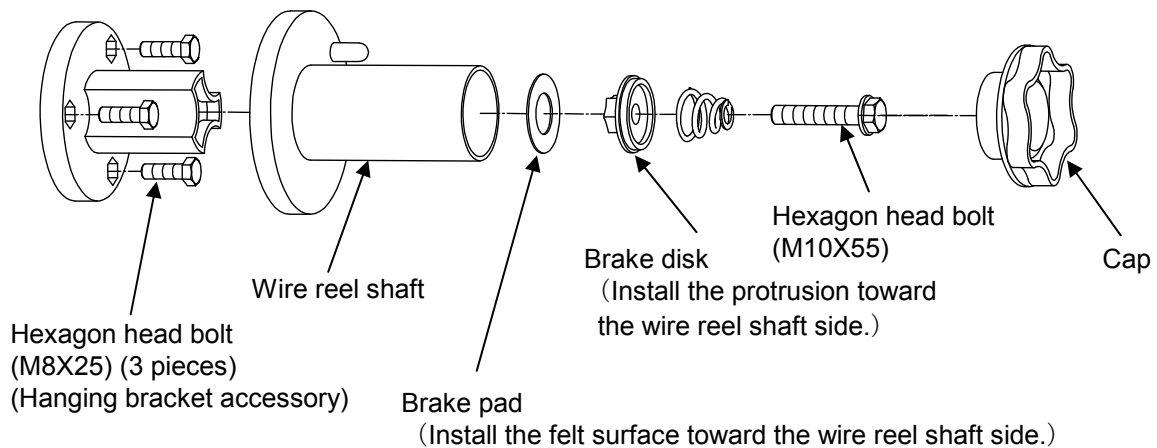
How to attach the hanging bracket

WARNING

Observe the following precautions to prevent serious personal injury caused by fall of the wire reel at the time of wire reel hub adjustment or hanging bracket installation.

- Mount the brake pad to the wire reel shaft as illustrated below with care placed to the mounting direction.
- Mount the brake disk to the wire reel shaft as illustrated below with care placed to the mounting direction.
- In the event that the brake pad and the brake disk are used in wrong directions, the hexagon head bolt comes loose due to rotations of the wire reel shaft and may fall together with the wire reel shaft.

1. Remove hexagon head bolt (M10X16) and Nut (M8) (3pieces) and remove the wire reel hub from the reel bracket.
2. Disassemble the wire reel hub, replace hexagon head bolt (M8X16) (3 pieces) with hexagon head bolt (M8X25) (3 pieces) of the hanging bracket accessory and reassemble the wire reel hub to its original condition. When reassembling, pay attention to the order and direction of parts.

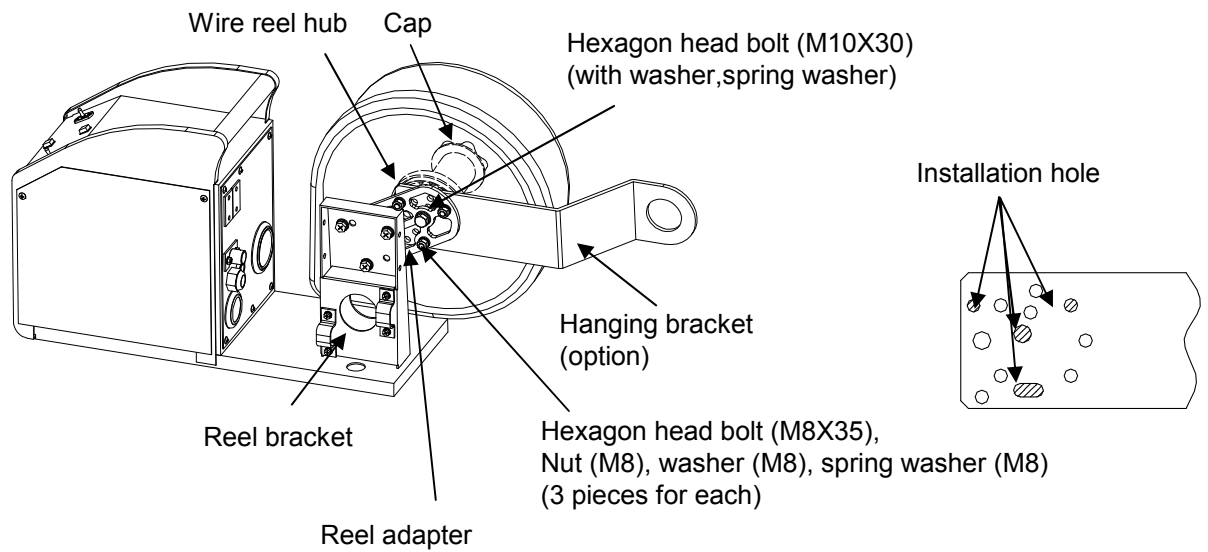


7. WELDING PREPERATION (continued)

3. Install the wire reel hub and hanging bracket on the reel bracket and tighten to the following torque so as not to loose the hexagon head bolt (M10X30), nut(M8), washer (M8) and spring washer (M8) (3 pieces for each) of the hanging bracket accessory in that order.
4. Adjust the wire reel hub.



Recommended tightening torque

M10	24N·m (245kgf·cm)
M8	6N·m (61kgf·cm)



8. MAINTENANCE AND TROUBLESHOOTING

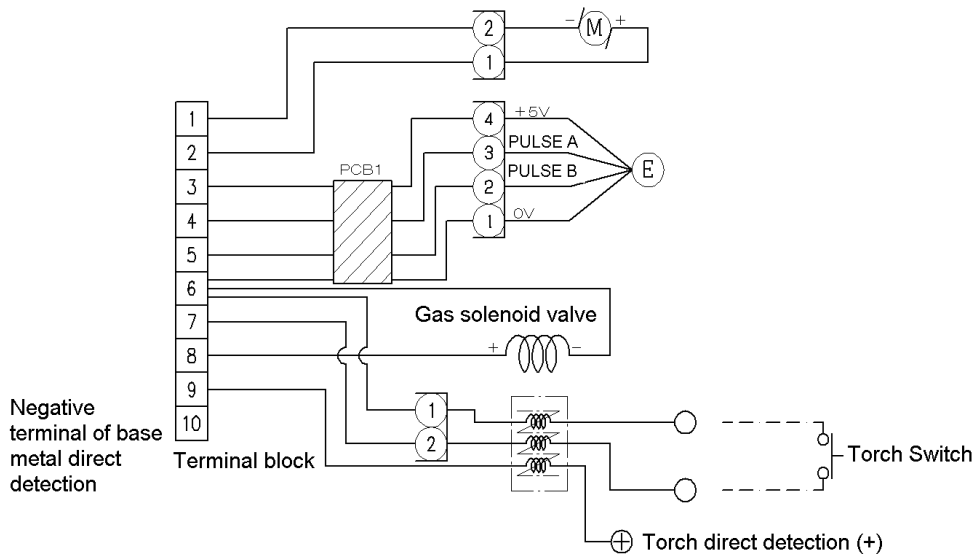
8.1 Carrying Out Maintenance

 WARNING	
	<ul style="list-style-type: none"> ● Do not touch the charging parts inside or outside the wire feeder. ● Disconnect the wire feeder from the welding power source by turning off the line disconnect switch in the power box to avoid an electric shock before carrying the equipment.

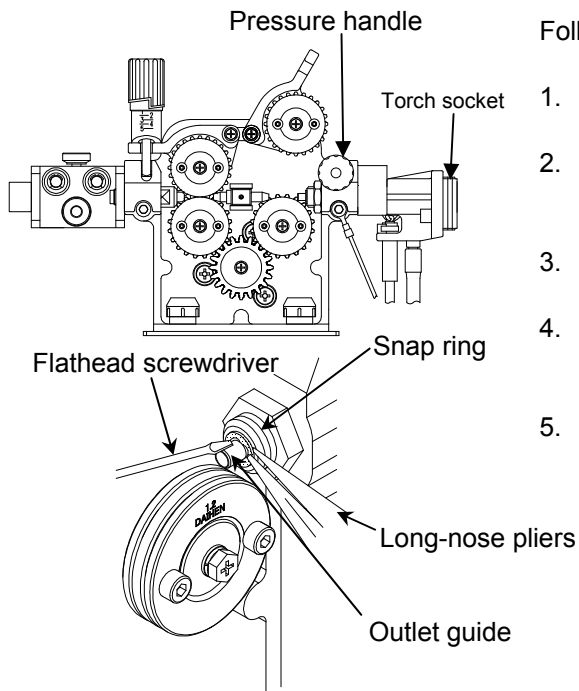
No.	Problem	Cause	Solution
1	Wire gets deformed.	Wire pressure is too strong.	Refer to "Recommended wire pressure adjustment" in Section 7.2.
		Feed roll of wrong wire size is used.	Replace it with the feed roll of proper wire size.
		Feed roll and pressure roll are worn.	Replace the feed roll and the pressure roll, if necessary.
2	Wire is not fed.	Poor contact or breakdown in the control cable.	Check the socket. Check the cables and replace them, if necessary.
		Poor contact or breakdown in the encoder cable	
		Poor contact or breakdown in the voltage detection cable	
		Trouble with the motor	Replace the motor, if necessary.
		Wire pressure is too weak.	Refer to "Recommended wire adjustment" in Section 7.2.
		Dust or chip is accumulated on the outlet guide and on the feed roll.	Remove the dust and chip.
3	Pressure roll does not rotate smoothly.	Failure of the pressure roll holder.	Replace it, if necessary.
4	Shield gas is not supplied when pressing the torch switch.	The discharge valve is closed of the gas cylinder.	Open the valve.
		Lack of gas pressure in the gas cylinder	Check gas pressure.
		Failure of gas solenoid valve	After checking the gas solenoid valve, replace it, if necessary.
5	Shield gas supply does not stop.	Failure of gas solenoid valve	Check the socket. Check the cables and replace it, if necessary.
6	Gas is leaking	Crack in the gas hose	Replace them, if necessary.
7	Wire is not fed smoothly through the wire reel.	Adjustment of the brake is either too strong or too weak.	Refer to "Adjustment of the wire reel hub" in Section 7.3.

8. MAINTENANCE AND TROUBLESHOOTING (continued)

< Schematic Diagram >



8.2 Replacing of the Outlet Guide



Follow the procedures below when replacing the outlet guide.

1. Bring down the pressure handle first, and then lift the pressure roll holder.
2. Forcibly insert a flathead screwdriver, etc. into the space between the outlet guide and the snap ring to remove the snap ring while holding the snap ring with long-nose pliers.
3. Remove the outlet guide by pushing it toward the torch socket.
4. Insert a new outlet guide from the direction of the torch socket, and then place the snap ring under the new outlet guide.
5. Return the pressure roll holder first, the pressure handle.

⚠ CAUTION

- Never attempt to disassemble the feed motor. This may result in damage to the wire feeder.
- Never check the amount of brushing friction or replace the brush.

Service life of the brush varies depending on ambient temperature, etc., but normally the service life is about 4,000 hours. (If the machine is operated for six hours a day, the service life of the brush will be about two years). Periodical replacement of the feed motor is recommended.

8. MAINTENANCE AND TROUBLESHOOTING (continued)

8.3 Welding wire other than aluminum

- This wire feeder is for an aluminum wire. But mild steel wire is also applicable by exchanging parts.
- Please rearrange to mild steel specification according to the wire to use. Please refer to the following table for the correspondence of wire and the specification. Performance of wire feeder is dependent on the brand etc. of the wire.

	Applicable wire
Aluminum specification	Aluminum
	Brazing
	Copper
Mild steel specification	Mild steel
	Stainless steel
	Inconel

- In the welding with a special condition (aluminum wave pulse welding etc.) or special wires (Brazing, copper, or Inconel, etc.), it is necessary to add the welding mode (option) to the welding power source.
- For wire pressure adjustment of mild steel, stainless steel or brazing wire, refer to the section 7.2.

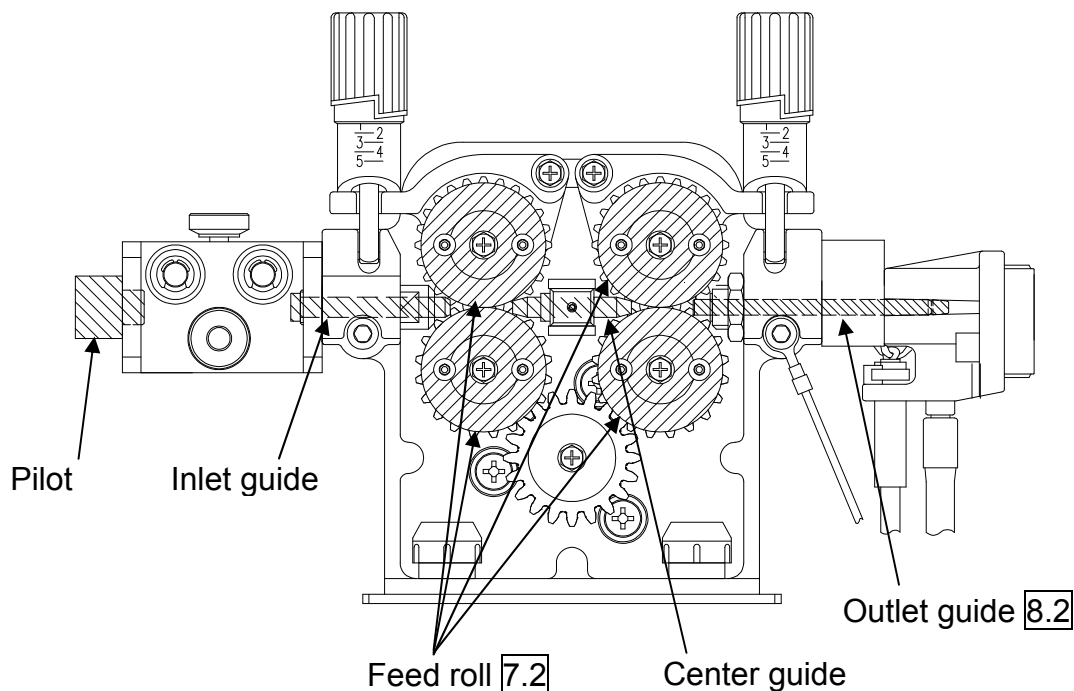
Rearrangement to mild steel specification

- Please exchange parts in the shaded portion of figure below to change specifications of this wire feeder to steel specification.

Please detach first two rolls from above with middle gear, and exchange to pressure roll.
Please choose the one which is written "for steel" in remarks of 9.5(2)-(4).

- Please select the one that exists in the remarks column for steel about each part among the optional accessories in clause 9.5 table (2)-(4).
- It is an item to which it refers and the figure relates.

Refer to the section indicated in for details.



9. PARTS LIST

- Please contact your local dealer to order parts. (See the back cover for telephone and fax numbers, and mailing addresses.)

9.1 Main body and wiring (Fig.1)

Ref. No.	Part number	Description	Q'ty	Remarks
1	U30000U00	Frame	1	Assembly
2	K970H90	Strike	2	
3	4739-013	Support	2	
4	U5185C01	Cover	1	With coating
5	U5185C02	Screw with knob	1	
5-1	3361-219	Washer	2	
6	U5281C03	Side plate	1	With coating and a screen
7	U5621C04	Rear cover	1	With coating
7-1	U5374J01	Grommet with film	1	
7-2	4739-506	Grommet	1	
7-3	4739-489	Grommet with film	1	
8	U5628C01	Panel	1	With coating and a screen
8-1	4739-549	Quick connector	1	For water in,red
8-2	4739-550	Quick connector	1	For water out,blue
9	U5209B00	Wire feeding part	1	With a feed motor
10	U5185D00	Central adapter	1	Assembly
11	U5207J03	Outlet guide (1.2)	1	With E type snap ring, white
11-1	3361-405	E type snap ring	(1)	E-4
12	U5185N00	Power cable	1	Assembly
13	U5185J09	Power terminal block	1	
14	4739-492	Terminal block	1	
15	U5185X00	Encoder cable	1	Assembly
16	U5185F00	Motor cable	1	Assembly
17	U5185E00	Control cable	1	Assembly, with metal socket
17-1	4730-422	Metal socket	(1)	
18	U30022F00	Wire reel hub	1	
19	U5191B00	Common mode coil	1	Assembly
20	U5185J01	Cable clamp	1	
21	U2028H01	Hose clamp	1	
22	U1997C03	Hose cover	2	
23	U5191F00	Reel adapter	1	
24	K5439E00	Wire reel cover	1	

9. PARTS LIST (continued)

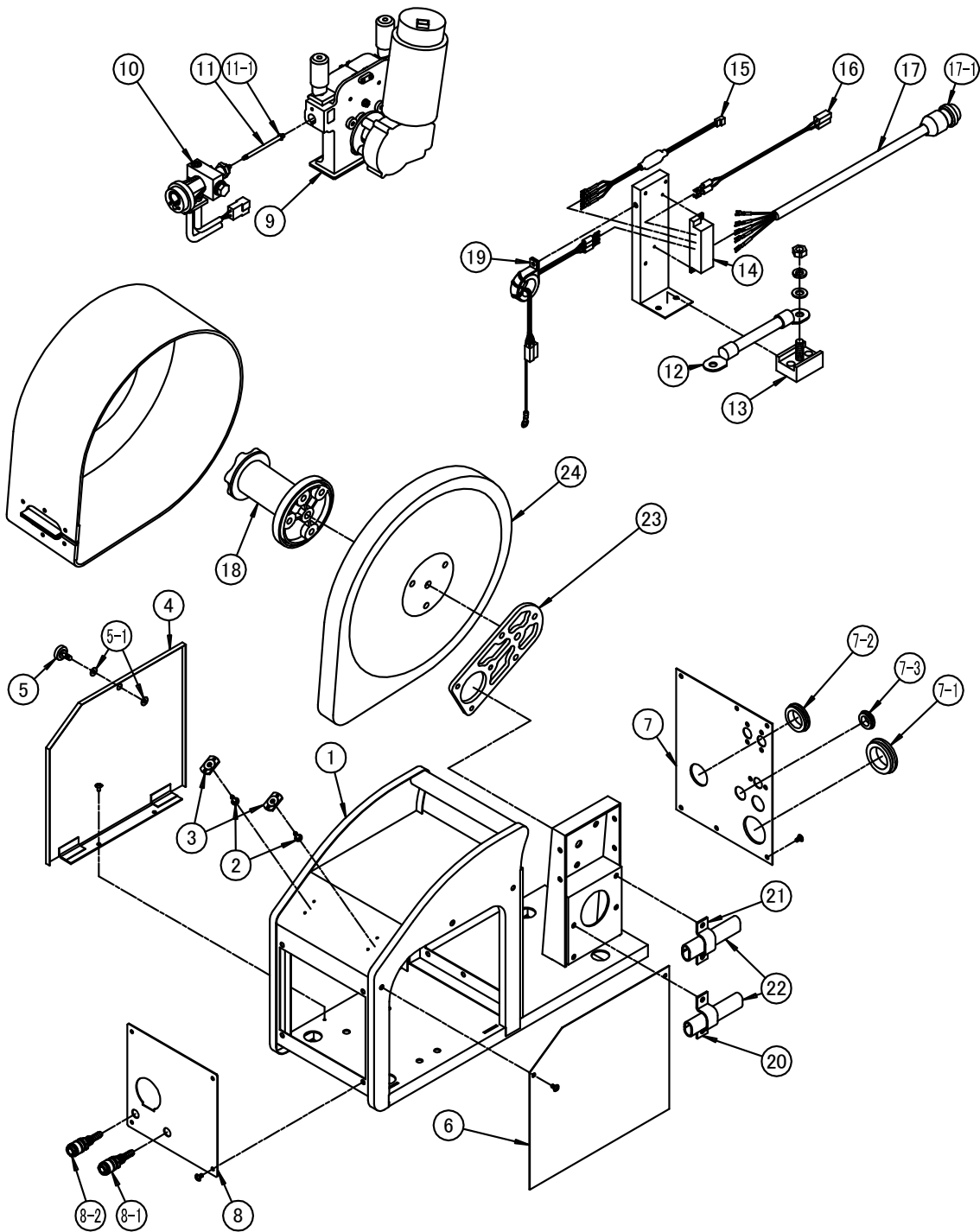


Fig. 1 Main Body and Wiring Assembly

9. PARTS LIST (continued)

9.2 Wire feeding part (Fig.2)

Ref. No.	Part number	Description	Q'ty	Remarks
1	U5185B01	Bracket	1	
1-1	none	Cap screw	2	M6 x 30
2	U5185B08	Coil spring	1	
3	U5185B02	Pressure roll holder pin	2	
4	U5185S00	Pressure roll holder (R)	1	Assembly
5	U5185T00	Pressure roll holder (L)	1	Assembly
6	U5158B03	Driving roll shaft	2	
7	U5185P00	Gear	2	Assembly
8	K5463R03	Feed roll (1.2/1.6)	4	
8-1	3361-880	Hexagon socket cap screw	8	M4 x 16
8-2	3361-884	Bolt	8	M4 x 10
9	U5185B04	Guide block	1	
10	U5204B03	Center guide (1.0-1.6)	1	
11	4802-206	Feed motor	1	
12	U5185B06	Insulation board	1	
13	U3971B04	Insulation bush	3	
13-1	3361-895	Flat head screw	3	M6 x 20
14	U5185Q00	Drive gear	1	
15	U5185B09	Pressure spring holder	2	
16	U5185B12	Compression spring	2	
17	U5185B10	Pressure handle	2	
18	U5185B11	Pressure bolt	2	
19	U5185B13	Insulation bush	2	
19-1	None	Hexagon bolt	2	M8 x 30
20	U5185B14	Insulation board	1	
21	U5185B15	Insulation cover	2	
22	U5204H00	Wire straightner	1	
22-1	U2344C08	Pilot	1	
22-2	U5204J07	Inlet guide	1	

9. PARTS LIST (continued)

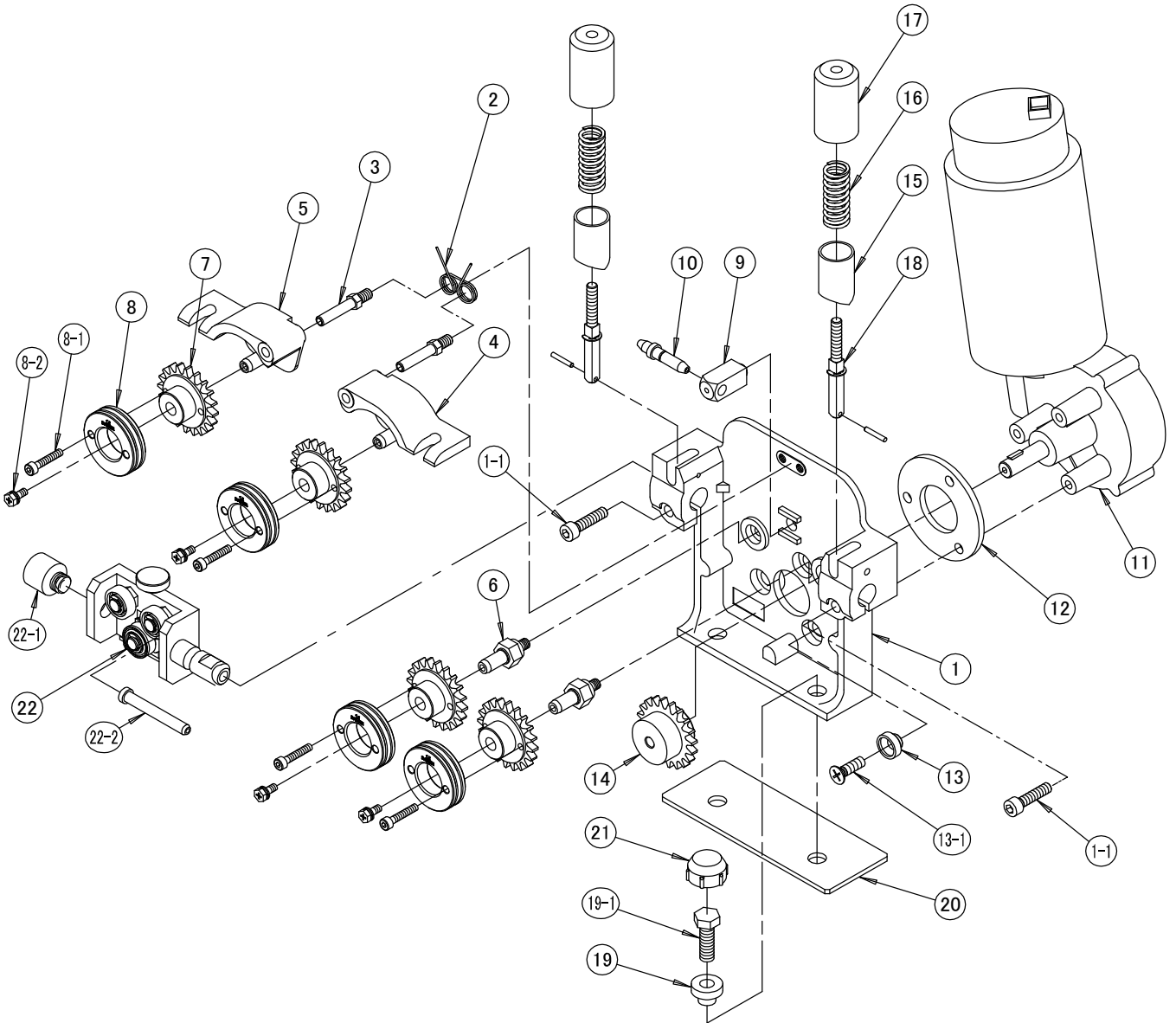


Fig. 2 Wire Feeding Part Assembly

9. PARTS LIST (continued)

9.3 Central adapter (Fig.3)

Ref. No.	Part number	Description	Q'ty	Remarks
1	U5185D01	Power metal fitting	1	
2	K3985E03	Block	1	
3	U5185D03	Power supply block	1	
3-1	3361-901	Hexagon socket cap screw	1	M8 x 25
4	U5185D04	Small nut	1	
5	K3985E04	Hose connector	1	
6	K3985E05	Sleeve	1	
7	U5185V00	Switch cord	1	Assembly

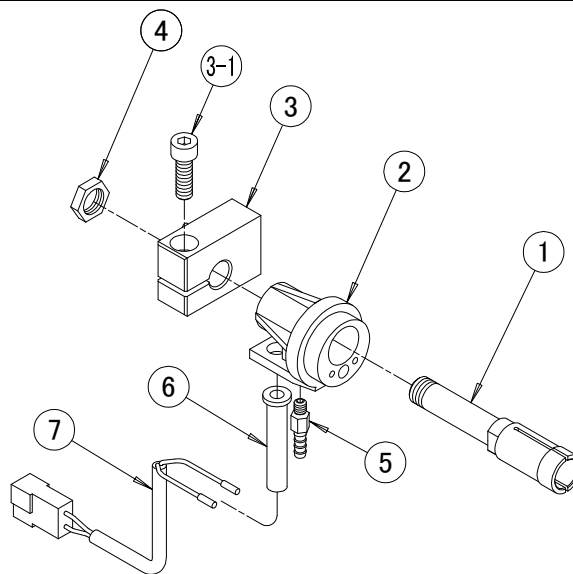


Fig. 3 Central Adapter Assembly

9.4 Gas piping (Fig.4)

Ref. No.	Part number	Description	Q'ty	Remarks
1	4813-001	Gas solenoid valve	1	
2	U4179D01	Hose elbow	1	
3	U1997D01	Gas connector	1	
4	U1997D02	Flange	1	

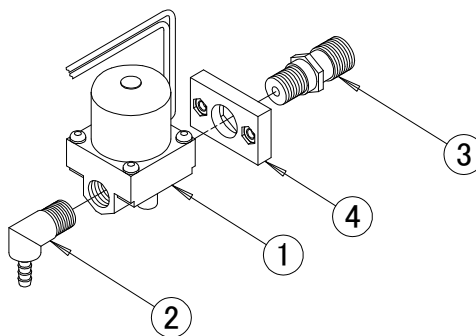


Fig. 4 Gas Piping Assembly

9. PARTS LIST (continued)

9.5 Optional Accessory

(1) Extension cable/hose

Power cable

Applicable current (Rated current)		200 A	350 A	500 A
Cable length	Cable termination	Model	Model	Model
2m	CSRT CSRT	BKPT-3802	BKPT-6002	BKPT-8002
	CSRT Connector	BKPDT-3802	BKPDT-6002	-
7m	CSRT CSRT	BKPT-3807	BKPT-6007	BKPT-8007
	CSRT Connector	BKPDT-3807	BKPDT-6007	-
12m	CSRT CSRT	BKPT-3812	BKPT-6012	BKPT-8012
	CSRT Connector	BKPDT-3812	BKPDT-6012	-
17m	CSRT CSRT	BKPT-3817	BKPT-6017*	BKPT-8017
	CSRT Connector	BKPDT-3817	BKPDT-6017*	-
22m	CSRT CSRT	BKPT-3822	BKPT-6022*	BKPT-8022
	CSRT Connector	BKPDT-3822	BKPDT-6022*	-

CSRT (Crimp Style Ring Terminal)

* When performing pulse welding using the welding power source with 350 A applicable current and a 17m or more cable, use the thicker cable by one rank. (BKPT-80XX, BKPDT-80XX)

Example:

When using a 22 m cable (crimp style ring terminal – DINSE connector)---BKPDT-8022

Control cable (10P)

	Cable length			
	5m	10m	15m	20m
Model	BKCPJ-1005	BKCPJ-1010	BKCPJ-1015	BKCPJ-1020

Gas hose

	Hose length			
	5m	10m	15m	20m
Model	BKGG-0605	BKGG-0610	BKGG-0615	BKGG-0620

Water hose

	Cable length			
	5m	10m	15m	20m
Model	BKWR-0605	BKWR-0610	BKWR-0615	BKWR-0620

9. PARTS LIST (continued)

(2) Feed roll·Pressure roll

Part number	Description	Q'ty	Remarks
K5439B01	Feed roll (1.4/1.6)	2	For steel
K5439B04	Feed roll (1.2/1.4)	2	For steel
K5439B05	Feed roll (1.2/1.2)	2	For steel
K5439B06	Feed roll (1.4/1.4)	2	For steel
K5439B07	Feed roll (1.6/1.6)	2	For steel
K5439B09	Feed roll (0.6/0.8)	2	For steel
K5439B11	Feed roll (1.2/1.6)	2	For steel
K5439B12	Feed roll (0.9-1.0/1.2)	2	For steel
K5439B13	Feed roll (0.8/0.9-1.0)	2	For steel
K5439C00	Pressure roll	2	For steel
K5463R01	Feed roll (0.8-1.0)	4	For aluminum (U type groove)
K5463R02	Feed roll (1.0-1.2)	4	For aluminum (U type groove)
K5463R03	Feed roll (1.2-1.6)	4	For aluminum (U type groove)
K5463R01	Feed roll (0.8-1.0)	4	For aluminum (V type groove)
K5463R02	Feed roll (1.0-1.2)	4	For aluminum (V type groove)
K5463R03	Feed roll (1.2-1.6)	4	For aluminum (V type groove)
K5463R06	Feed roll (0.8-0.9)	4	For brazing

(3) Center guide·Outlet guide (Outlet guides include E type snap ring)

Part number	Description	Q'ty	Remarks
U5185B05	Center guide (0.6-1.6)	1	For steel
U5204B02	Center guide (0.8-1.0)	1	For aluminum, white
U5204B03	Center guide (1.0-1.6)	1	For aluminum, black
U5185D05	Outlet guide (0.6 - 0.9)	1	For steel
U5185D02	Outlet guide (0.9 -1.2)	1	For steel
U5185D06	Outlet guide (1.2 -1.6)	1	For steel
U5207J02	Outlet guide (0.8-1.0)	1	For aluminum, black
U5207J03	Outlet guide (1.2)	1	For aluminum, white
U5207J04	Outlet guide (1.6)	1	For aluminum, black
3361-405	E type snap ring	(1)	E-4

(4) Parts for wire straightner

Part number	Description	Q'ty	Remarks
K970G72	Pilot	1	For steel
U2344C08	Pilot	1	For aluminum
U5204M02	Inlet guide	1	For steel
U5204J07	Inlet guide	1	For aluminum

(5) Other Optional Parts

Part number or specifications	Description	Q'ty	Remarks
U5191E00	Wire reel cover (simple)	1	With bolts
K5439F00	Caster	1	For wire feeder, with 4 wheels and bolts
U30022Z00	Hanging bracket	1	With bolts
FCR-226	CO ₂ gas regulator (with heater)	1	Max. current rate: 25 liter/min
NP-201	CO ₂ gas regulator (without heater)	1	Max. current rate: 20 liter/min
FCR-100N	CO ₂ gas regulator for large current	1	Max. current rate:100 liter/min
D-BHN-2	Argon gas regulator	1	For MAG gas 28 liter/min

10. SPECIFICATIONS

10.1 Specifications

Model		CMAW-7401 (Water cooling)
Applicable wire size	Hard aluminum AL/MG (HARD)	(1.0), 1.2, 1.6
	Soft aluminum AL/PURE (SOFT)	1.2, 1.6
	Mild steel, stainless steel	(0.6)* ¹ , (0.8), (0.9), (1.0), (1.2), (1.4), (1.6)
	Brazing* ²	(0.8), (0.9), (1.0), (1.2)
Wire feeding rate		Max. 22 m/min
Applicable wire reel	Shaft diameter	φ 50 mm
	External diameter	Max. φ 300 mm
	Width	103 m
Mass of applicable wire		Max. 25 kg
Mass		15 kg

*This wire feeder is for an aluminum welding. For other wire, refer to section 8.3.

*1 For using brazing wire, adding welding mode (option) to the welding power source is necessary.

*2 For using mild steel wire φ 0.6, adding welding mode (option) to the welding power source is necessary.

10.2 Available Welding Torch

- Welding torch for aluminum or stainless steel

Rated current	Cooling method	Duty cycle	For aluminum	For stainless steel
200 A	Air	60%	WTA200-SD	-
300 A		50%	WTA300-SD	WTS300-SD
400 A	Water	100%	WTAW400-SD	-

*Cable length of aluminum or stainless steel welding torch is 3m.

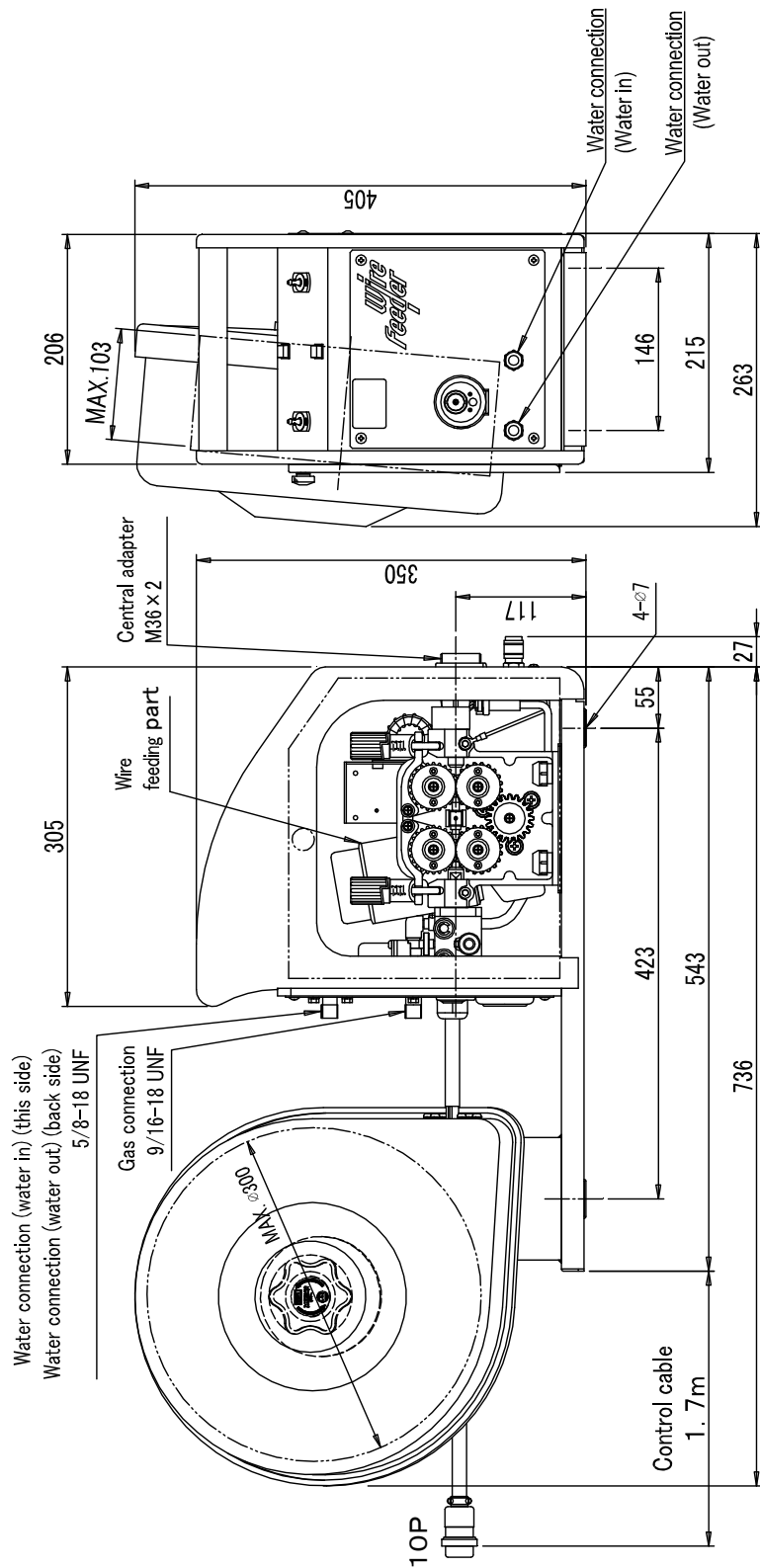
- Welding torch for mild steel

Rated current	Cooling method	Duty cycle	Cable length			
			3m	4m	4.5m	5m
180 A	Air	40%	WT1800-SD	-	-	-
200 A		50%	WT2000-SD	WT2000-MD	-	-
350 A		30%	WT3500-SD	-	WT3500-MD	WT3500-LD
350 A		60%	WT3510-SD	-	WT3510-MD	WT3510-LD
350 A		80%	WT3520-SD	-	WT3520-MD	WT3520-LD
500 A		60%	WT5000-SD	-	WT5000-MD	WT5000-LD

10.3 Standard Accessory

Part number	Description	Quantity	Remarks
K5463R03	Feed roll (1.2/1.6)	(2)	Pre-installed
K5430A00	Gas hose	1	BKGFF-0603 (3m)
U1997C03	Hose cover	2	
U2879J00	Water hose	2	1.7m
U5207J04	Outlet guide (1.6)	1	For aluminum, black, with E type snap ring

10. SPECIFICATIONS (continued)



External View of CMAW-7401 type Wire Feeder



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