



OWNER'S AND OPERATOR'S MANUAL

Wire Feeder SWF500K



CAUTION

Do not operate the Generator/Welder, or any other appliance, before you have read and understood the instructions for use and keep near for ready use.

SWF500K
X753-008 77 0
X753803-460 0

Introduction

We would like to thank you very much for purchasing this Shindaiwa wire feeder.

- This manual has been created in order to ensure safe and proper use of this equipment. Be sure to thoroughly read this manual before operating the equipment as the improper operation of this equipment can result in an accident or malfunction.
 - This equipment should only be operated by persons who thoroughly understand the contents of this manual and can safely operate the equipment. Persons who are ill, taking medicine, or are in bad health should not operate this equipment if such conditions will affect operation of the equipment and related work.
 - Operation and use of this equipment must be in strict compliance with the applicable laws, as well as rules and regulations based on such laws.
 - Always be sure to include this manual with the equipment if it is loaned out to another party, and instruct said party that they must thoroughly read this manual before operating the equipment.
 - Store this manual securely in a predetermined location so that it can be readily accessed at all times to order parts or arrange for repair. Contact the retail outlet where this equipment was purchased if any parts are lost, the equipment becomes soiled, or is otherwise damaged in any manner.
 - Consult with the retail outlet where the equipment was purchased if any of the points are unclear or you would like further information.
Be sure to note the model name and serial number of your equipment, and provide this information when making an inquiry.
 - If disposing of this equipment, dispose in a manner according to laws and regulations applicable to industrial waste. Consult with the retail outlet where the equipment was purchased if you have any inquiries regarding proper disposal.
- The precautions used in this manual are divided into the following three ranks.

-  **Warning:** Improper operation can result in death or serious personal injury.
-  **Caution:** Improper operation can result in moderate or minor personal injury, or physical damage.
- <Note>:** Explanatory note in order to ensure that equipment protection and performance are fully realized.

- It is possible that items described under **< ⚠ Caution >** or **< Note >** can result in a serious accident depending on the circumstances. The contents of both of these types of precautions are important. Be sure to always comply with all precautions.

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1. Safety Precautions

Warning: Suffocation from Welding Fume

- Always be sure to wear a fume-proof mask when welding as the fumes generated during welding include harmful gases and dust. Also be careful that the wind direction is not such that it will cause fumes to be inhaled and always operate the equipment in a well-ventilated area.

Warning: Electric Shock

- Close the door of this wire feeder while welding.
- Do not touch this wire feeder if it or any of your body part is wet.
- Touching a charged part may result in lethal electric shock or burns.
- Do not touch the charged part of the wire, wire-feeding parts, or similar charged parts while performing welding work.
- Be sure to always stop the welder when installing/removing welding cables to/from the welder, and when replacing the wire and feed rollers.
- Never connect a welding cable to any part other than the welding output terminals of the welder.
- Always be sure to stop the welder when performing inspection or maintenance.

Warning: Fire

- Keep any ignitable items (such as fuel, gas and paint) or inflammable items away from the work area due to the scattering of weld spatter that occurs during welding.

Warning: Injury

- Do not place hands inside the wire feeder while operating. You could be caught in the wire feeding rollers.
- Do not perform inching or pull the torch switch when your eyes, face, or body is near the welding torch tip because it may result in injury from the tip of the welding wire.
- Do not use this wire feeder if it has been modified or any part has been removed.

Warning: Electromagnetic Interference

- Persons using a heart pacemaker are not allowed near the welder or welding work area while welding is being performed without the permission of a doctor. The welder generates a magnetic field while energized that can negatively affect pacemaker operation.

Caution: Electric Shock

- Do not sprinkle water on the equipment and do not use where exposed to rain.
- If wearing gloves, be sure to always wear gloves with dry insulation properties. Do not wear gloves that are damaged or wet.

Caution: Burns

- Always be sure to wear leather gloves, apron, shoe covers, arc-proof glasses (face shield), safety shoes, hard hat and long-sleeve clothing to protect against the scattering of weld spatter that occurs during welding.

⚠ Caution: Injury to Eyes and Skin

- Always be sure to wear arc-proof glasses, clothes that completely cover the skin and other protective gear when welding to protect the eyes and skin from harmful light rays generated during welding.

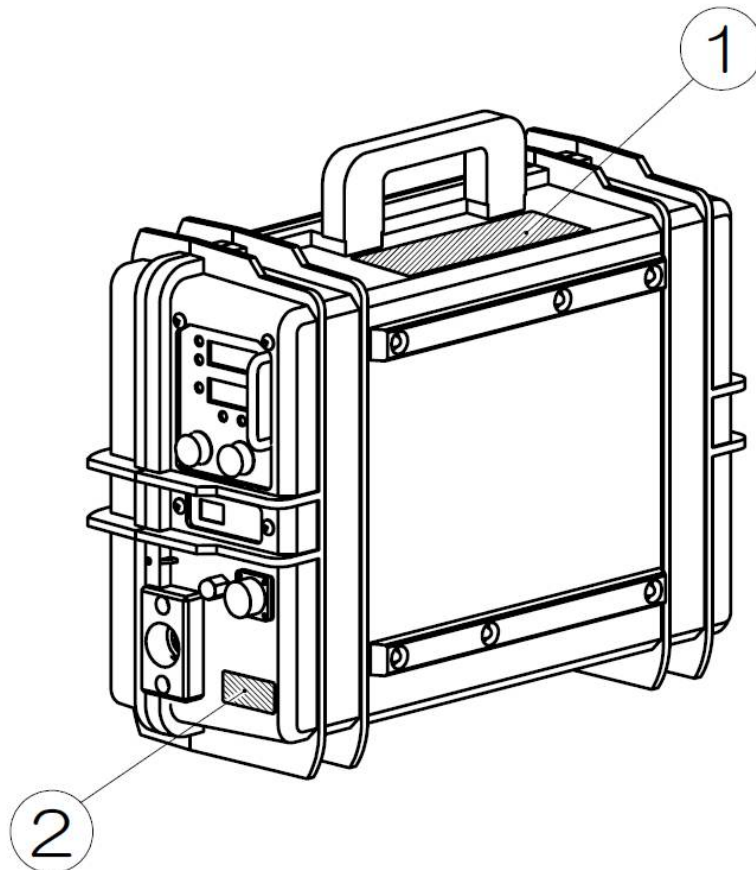
⚠ Caution: Physical and Secondary Damage

- Do not use the equipment for any improper applications. Improper usage can result in an accident or malfunction.

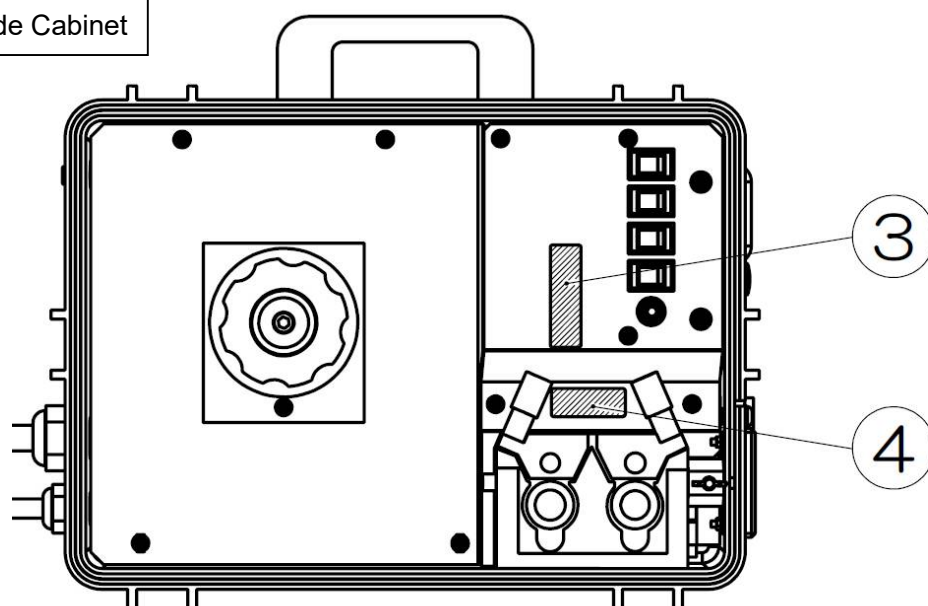
■ Location of Warning Labels

Replace warning labels when they become difficult to see or damaged by affixing new labels in the specified locations. Order the necessary labels by numbers in parentheses.

- | | |
|---------------------------------|-------------------|
| ① Suffocation from Welding Fume | (No. X564-000940) |
| ② Electric Shock | (No. X564-000950) |
| ③ Electric Shock | (No. X564-000960) |
| ④ Injury | (No. X564-000970) |



Inside Cabinet



2. Specifications

Input voltage	Normal	(V)	DC 15—110
	External source	(V)	AC 24—42
Rated welding current	Duty cycle: 60%	(A)	500
	Duty cycle: 100%	(A)	340
Wire feeding speed	Inch display	(inch/min)	50—700
	Meter display	(m/min)	1.3—17.8
Applicable wire diameter	GMAW (Solid or Cored Wires)	(mm)	(Optional) φ1.2 φ0.9, 1.6
	FCAW (Self-Shielded Wires)	(mm)	φ0.9, 1.2, 1.4, 1.6, 1.8, 2.0, 2.4
Spool shaft	Shaft diameter	(mm)	50
	Max. installation width	(mm)	105
	Max. installation diameter	(mm)	300
	Brake mechanism		Equipped
Weight		(kg)	16
Length		(mm)	555
Width		(mm)	221
Height		(mm)	428

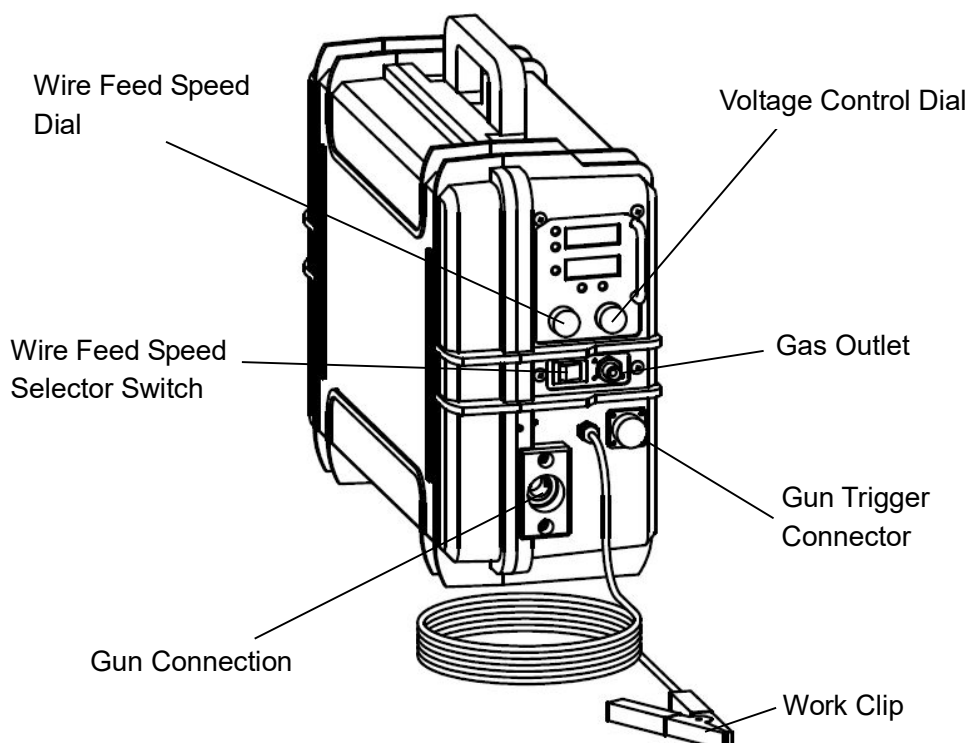
3. Application

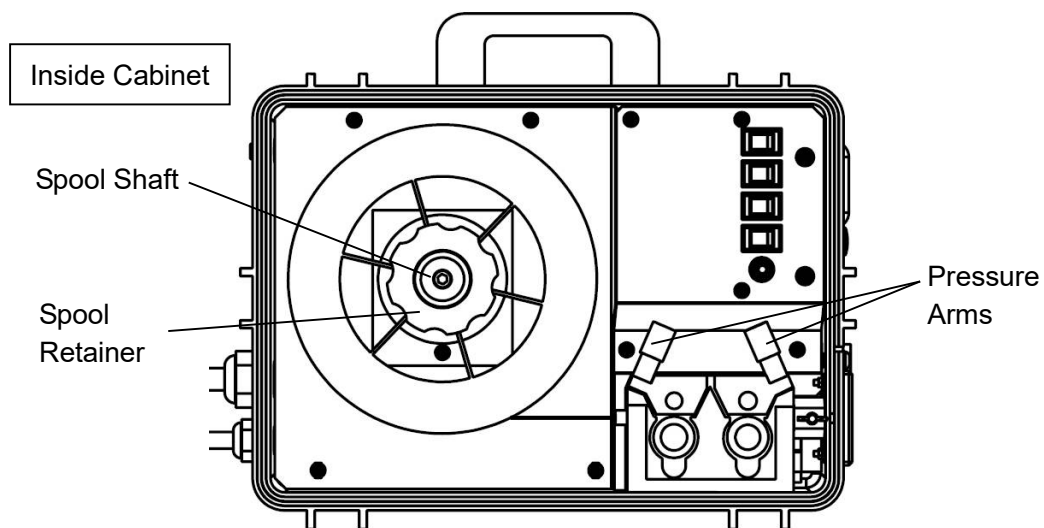
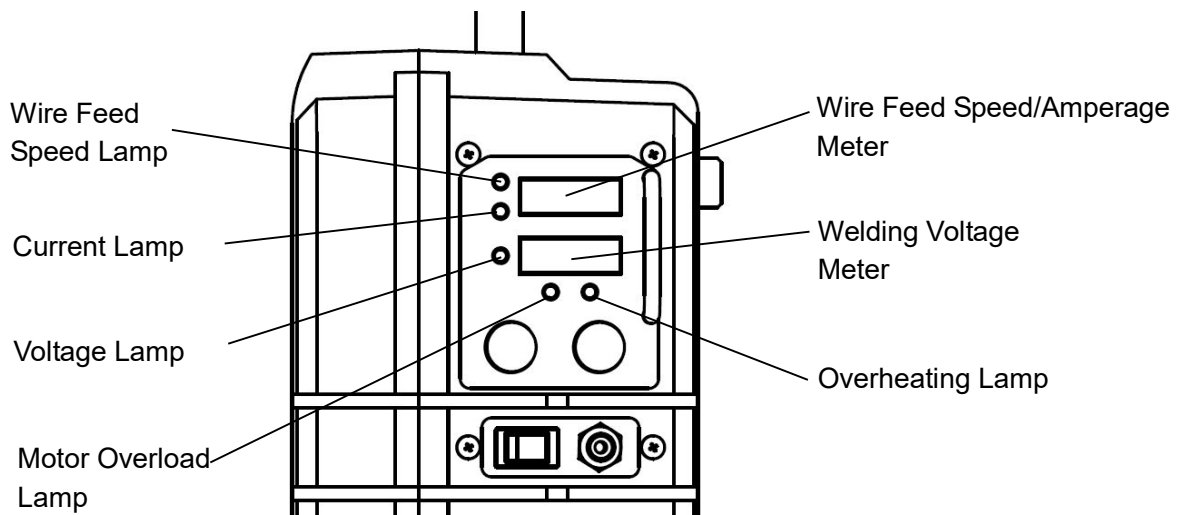
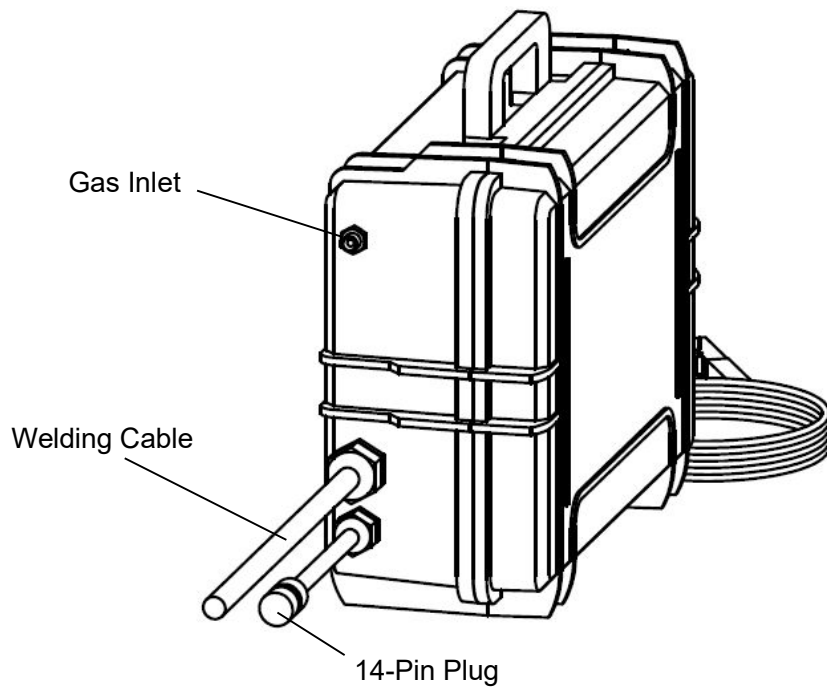
- Semi-automatic Arc Welding(MIG, MAG, Self-Shielded)

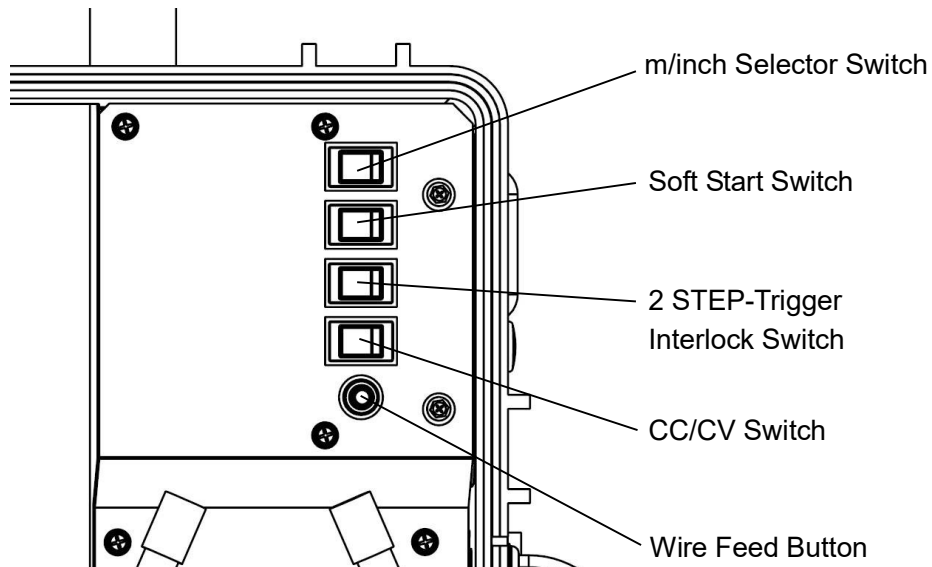
⚠ Caution: Physical and Secondary Damage

- Do not use this wire feeder for any purposes other than that indicated above. Improper usage can result in an accident or malfunction.

4. Part Names







Accessories

OWNER'S
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MANUAL

5. Pre-Operation Inspection

⚠ Warning: Electric Shock

- Always be sure to stop the welder when performing inspection.

Inspection Location	Inspection Item	Comments
Wire Feeding Unit	• Check that the diameter of the welding wire matches or conforms to the nominal diameter of the rollers	The nominal diameter is inscribed on the rollers
	• Check roller grooves for clogging, chipping, and groove wear	Can cause poor wire feeding
	• Check for looseness of knurled screws fixing rollers (4 locations)	Can cause parts falling off
	• Check for chips or foreign material accumulated near the gun inlet and rollers	Can cause clogged torch cable
Welding Torch	• Insertion of welding gun terminal	Check that terminals are fully inserted
	• Check for looseness of screws fixing the welding gun	Check that screws are securely fixed
	• Welding tip consumption and wear	Can cause poor welding performance

6. Preliminary Preparation for Welding

6-1. Welding Cable Selection

Use welding cables with a cross-sectional area that is larger than the proper cross-sectional areas indicated in the table below.

Using cable that is less than the proper cross-sectional area reduces the weld output.

<Note>

- Use welding cables when they are completely extended (not coiled). Using a cable that is coiled reduces the weld output.

Proper Cable Cross-Sectional Area (Units: mm ²)						
Weld Current \ Return Length	20m	30m	40m	60m	80m	100m
500A	38	60	80	125	200	200
450A	38	60	80	100	150	200
400A	38	50	60	100	125	200
350A	30	50	60	80	125	150
300A	30	38	50	80	100	125
250A	22	30	38	60	80	100
200A	22	30	30	50	60	80
150A	22	22	22	38	50	60
100A	22	22	22	30	30	38

6-2. Welding Polarity

There are "+" (positive) and "-" (negative) weld output terminals.

Select a cable connection to match the wire polarity.

Wire Polarity	Cable Connecting Method
DC (-)	Connect the wire feeder to the negative (-) side Connect the ground (base material) to the positive (+) side
DC (+)	Connect the ground (base material) to the negative (-) side Connect the wire feeder to the positive (+) side

<Note>

- When welding with 2 persons using different polarities for the same base material, a single worker must not hold 2 holders because the voltage between the 2 holders could become high and there may be a danger.

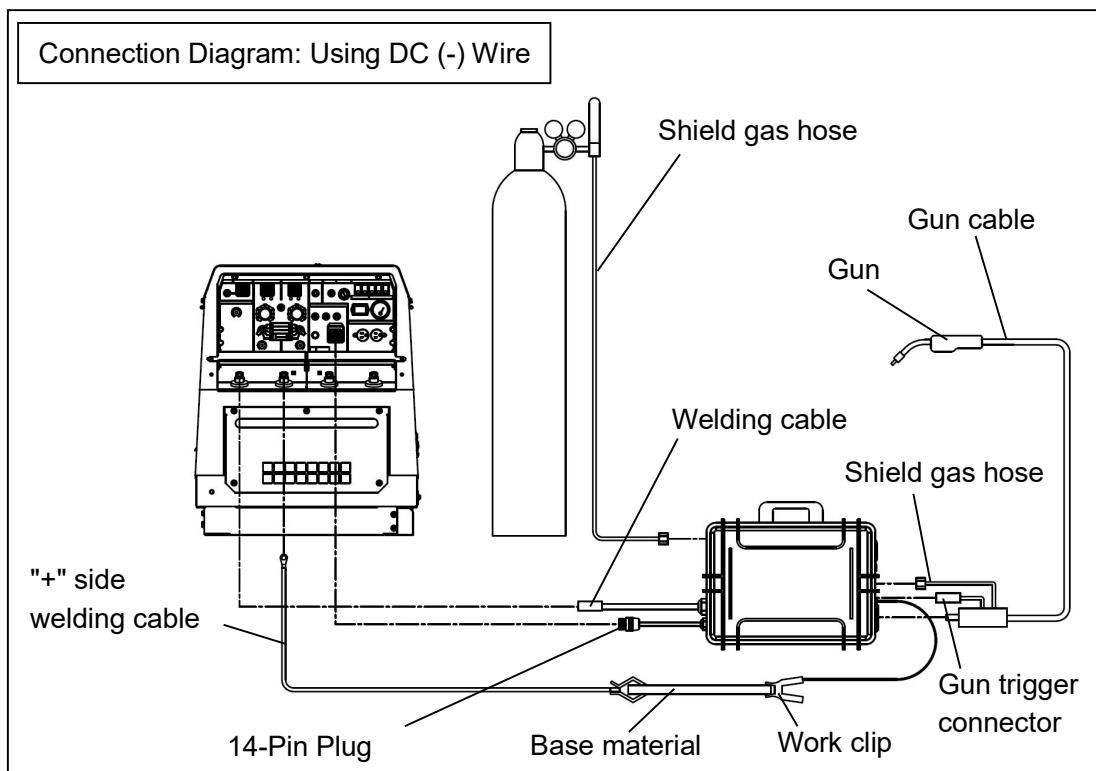
6-3. Welding Cable Connection

⚠ Warning: Electric Shock

- Be sure to stop the engine whenever touching Weld output terminals such as when installing or removing welding cables, and when replacing the wire and feed rollers.
- Do not connect a welding cable to any part other than weld output terminals.

<Note>

- Joint terminals and similar parts are not equipped to power cable tips at the time of purchase.
Use insulation when installing terminals in order to prevent electric leakage.
- Make sure the crimped terminals are securely crimped and welding cables are securely connected. Insufficient connection may result in faulty welding that generates heat and burns the welding output terminals.
- Using this wire feeder without installing crimped terminals to the cables, but rather with the covering peeled back and the wiring wrapped around the welding output terminals may result in faulty connection that generates heat and burns the welding output terminals, as well as contact with the welder main unit, causing a short circuit.



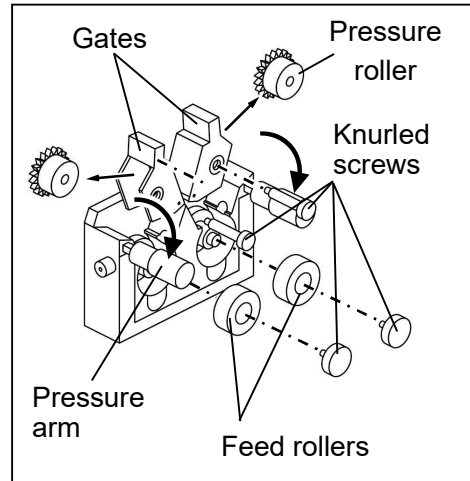
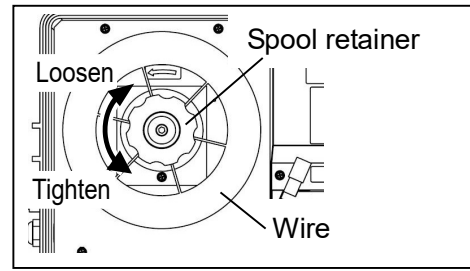
6-4. Feed Roller Replacement

Replace the feed and pressure rollers to match the wire diameter being used.
The nominal diameter of the roller is inscribed on the surface.

- 1 Stop the welder and stop the supply of power to the wire feeder.
- 2 Remove the spool retainer and then remove the wire.
- 3 Release the pressure arms and open the gates.
- 4 Remove four knurled screws.
(The knurled screws of the gates are left-handed.)
- 5 Remove two feed rollers and two pressure rollers.

Install the rollers in the reverse order of the removal procedures.

Install the feed rollers with inscription of the used wire diameter on the outside.



<Note>

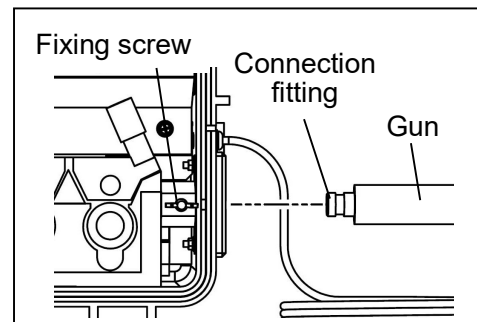
- Make sure that the upper and lower rollers are for use of the same wire diameter when assembling. Installation of different upper and lower rollers, or a roller not appropriate for the wire diameter negatively affects feeding performance.
- Always be sure to use genuine parts when replacing parts.

6-5. Gun Connection

Fully insert the Gun connection fitting into this wire feeder and tighten the fixing screw.

<Note>

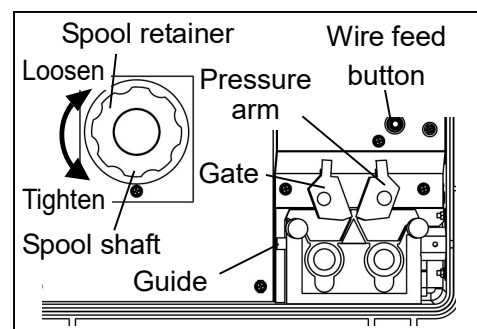
- Use the designated Gun.
- Use of a non-designated Gun may result in terminal damage or abnormal overheating during welding.



6-6. Wire Setting

- 1 Remove the spool retainer and set the wire on the spool shaft.
- 2 Release the pressure arms and open the gates.
- 3 Feed the wire along the guide to the gun.
- 4 Close the gates, clamp the pressure arms.
- 5 Start the welder, turn on the wire feeder power, and press the wire feed button to feed the wire to the gun.

* Straighten the tip of the wire to make threading easier.

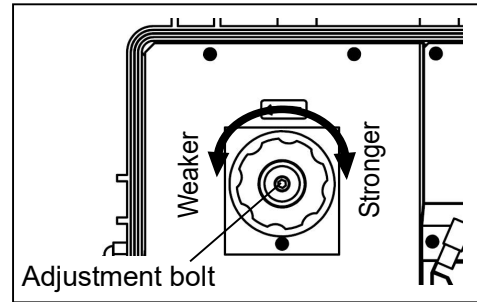


6-7. Spool Brake Adjustment

Adjustment bolt at the center of the spool shaft can control the brake strength to prevent overrun.

<Note>

- If the pressure is too high, it will hinder the spool shaft, possibly resulting in motor overload or wire feeding fault.

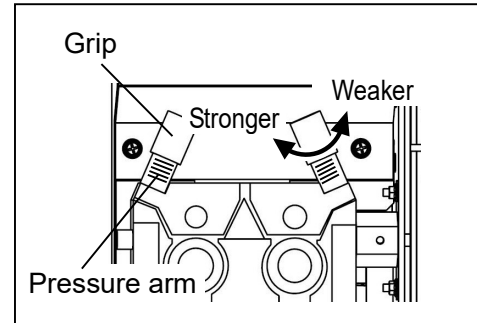


6-8. Pressure Arm Adjustment

Adjust the pressure by pressure arm according to wire thickness.

Weak pressure may result in wire slippage or feeding fault.

The pressure value is printing on the pressure arms.



<Note>

- Set the same pressure value f on each pressure arm.

Set the pressure am as follows:	
FCAW (Self-Shielded Wires)	between 2 and 3
GMAW (Solid or Cored Wires)	between 3 and 4

6-9. Duty Cycle

The duty cycle is the percentage of time the load is being applied in a 10 minute period. For example a 60% duty cycle, represents 6 minutes of load and 4 minutes of no load in a 10 minute period.

<Note>

- Continuing to weld beyond the rated duty cycle with the rated output can result in equipment overheating and corresponding malfunctions.

7. Welding Work

⚠ Warning: Electromagnetic Interference

- Persons using a heart pacemaker are not allowed near the welder or welding work area while welding is being performed without the permission of a doctor.
The welder generates a magnetic field while energized that can negatively affect pacemaker operation.

⚠ Warning: Suffocation from Welding Fume

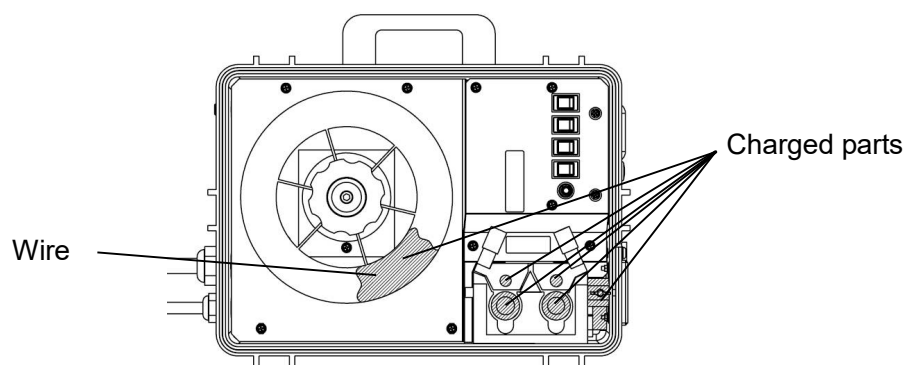
- Always be sure to wear a fume-proof mask when welding as the fumes generated during welding include harmful gases and dust. Also be careful that the wind direction is not such that it will cause fumes to be inhaled and always operate the equipment in a well-ventilated area.

⚠ Warning: Fire

- Keep any ignitable items (such as fuel, gas and paint) or inflammable items away from the work area due to the scattering of weld spatter that occurs during welding.

⚠ Warning: Electric Shock

- Touching a charged part may result in lethal electric shock or burns.
- Do not touch the charged part of the wire, wire-feed parts, or similar charged parts while performing welding work.



⚠ Caution: Eye and Skin Injury

- Always be sure to wear arc-proof glasses (refer to the table below), clothes that completely cover the skin and other protective gear when welding to protect the eyes and skin from harmful light rays generated during welding.

Standards for Arc-Proof Glasses (Japanese Industrial Standard)

Light Shielding No.		9	10	11	12	13	14
Semi-automatic Arc Welding	Weld current (A)	100 or less		101-300		301-500	

⚠ Caution: BURNS/Electric Shock

- Always be sure to wear leather gloves, apron, shoe covers, arc-proof glasses (face shield), safety shoes, hard hat and long-sleeve clothing to protect against the scattering of weld spatter that occurs during welding.
- If wearing gloves, be sure to always wear gloves with dry insulation properties. Do not wear gloves that are damaged or wet.

Adjust the voltage and wire feed speed to match the welding work performed.

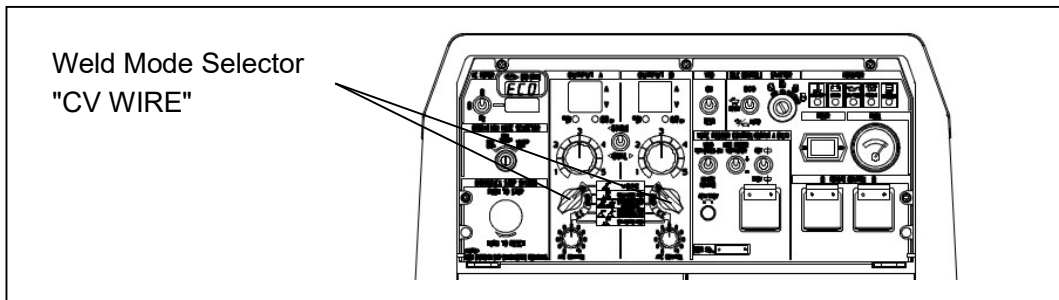
<Note>

- Do not use in an area with high temperature or humidity, or an area with a large amount of dust.
- Close the door of this wire feeder while performing welding work.

Overview of Wire Feeder Settings (CC Mode)

	Wire Diam. [mm]	Wire Feed Speed [inch/min] ([m/min])	Feeder Voltage [V]	Current [A]
FCAW (Self-Shielded Wires)	φ1.6	280 (7.1)	25.0	210
		560 (14.2)	30.0	330
	φ2.4	160 (4.1)	25.0	300
GMAW (Solid or Cored Wires)	φ1.2	270 (6.9)	22.0	150
		450 (11.4)	24.0	260

Welder Main Unit Settings

**7-1. Display**

- Wire feed speed/Amperage meter
Indicates the set value of the feed speed when the wire feed speed lamp is lit up.
Indicates the actual weld current value when the current lamp is lit up during welding.
- Welding voltage meter
Indicates the actual input voltage value when the voltage lamp is lit up.
When the 14-Pin Plug is connected, the welding voltage meter displays "- - -" while welding is not performed, and displays the actual weld voltage value during welding and it will be displayed for eight seconds after you stop welding.
The actual input voltage value is constantly displayed when not using 14-Pin Plug.

7-2. Wire Feed Speed Adjustment

Wire feeding speed adjustment dial can control the feeding speed.

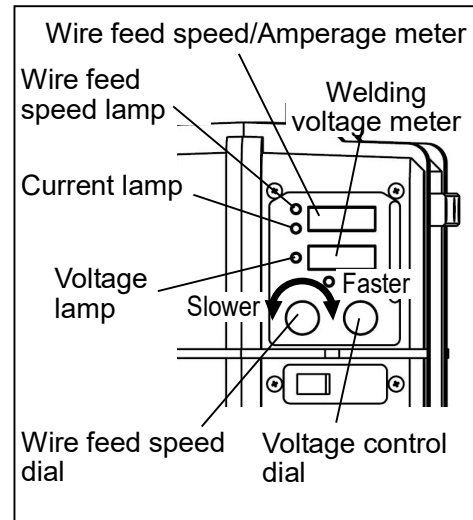
Turn the dial clockwise to increase the wire feed speed.

Turn the dial counterclockwise to decrease the wire feed speed.

7-3. Voltage Control

The voltage control dial functions only when the 14-Pin Plug is connected.

Turn the voltage control dial to adjust the output voltage of the welding power source.



Displayed Items

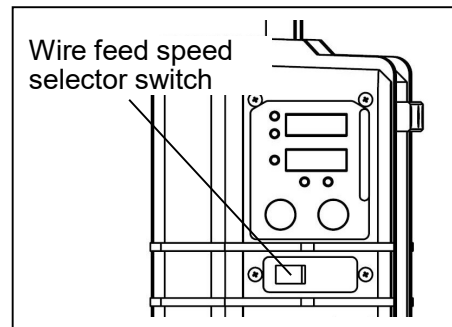
14-Pin Plug Connection	Wire feed speed/Amperage meter		Welding voltage meter	
	When no welding is performed	During welding	When no welding is performed	During welding
Connected	Set value of wire feed speed	Actual weld current value	---	Actual weld voltage value
Not connected	Set value of wire feed speed	Actual weld current value	Input voltage value	Actual weld voltage value

7-4. Wire Feed Speed Selector Switch

"High" and "Low" selector allows you to change the wire feeding speed range.

- High: 50 to 700 [inch/min]
(1.3 to 17.8 [m/min])
- Low: 50 to 350 [inch/min]
(1.3 to 8.9 [m/min])

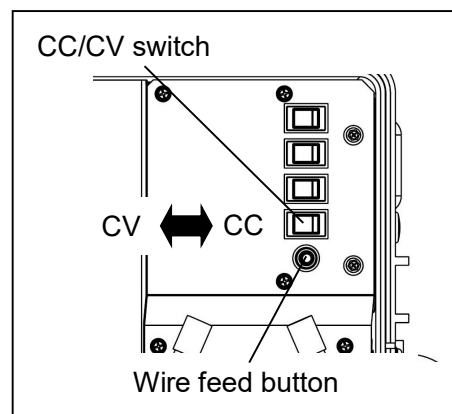
* Setting to "Low" makes fine adjustment easier.



7-5. CC/CV Switch

Operate the CC/CV switch to change between "CC Mode" and "CV Mode".

- CC Mode (Engine welders)
Adjusts (varies) the wire feed speed to match the change in the arc length in order to maintain a uniform arc length.
- CV Mode (Welders using a commercial power source)
Supplies wire at a constant speed.



7-6. Wire Feed Button

Use inching to thread wire when setting the wire spool or replacing the welding torch.
Voltage is not applied to the wire when feeding Wire Feed Button.
Use the wire feed speed adjustment dial can adjust the wire feed speed.

7-7. 2 STEP-Trigger Interlock Switch

Operate the switch to turn the self-holding function "ON" and "OFF".

Trigger Interlock "ON": Hold gun trigger to start welding, after the arc stabilizes, welding will continue when trigger is released.

To stop welding, press and release the trigger.

* This function is useful when performing continuous welding.

Trigger Interlock "OFF": Arc is generated only when you hold the trigger.

Release the trigger to stop welding.

* This is useful when performing tack welding or when you perform welding of short length on many places.

7-8. Soft Start Switch

This function gradually increases the current value when you start to weld.

7-9. m/inch Selector Switch

You can change the units for the wire feeding speed between "m/min" and "inch/min".

7-10. Monitor Display

This wire feeder is equipped with an error indicator function that indicates faults during operation. If a fault is detected during operation, it is indicated by the monitor lamps. When error is detected, you must immediately stop operation, and inspect and repair the location of the fault.

(Refer to "8. Troubleshooting".)

- Motor overload

The motor overload lamp flashes to indicate an overload state.

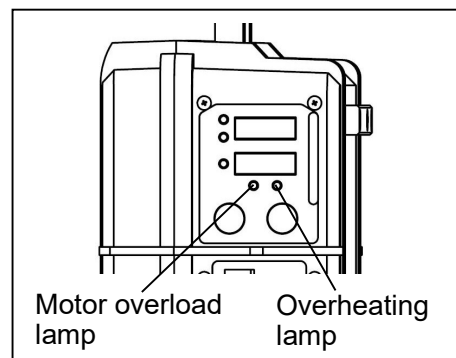
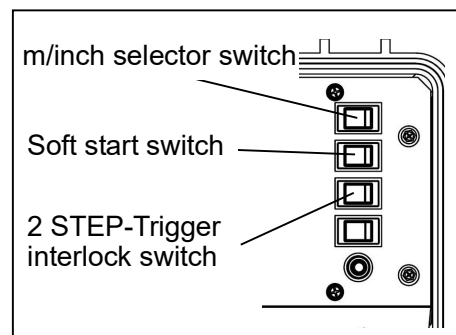
The lamp lights up if the overload state continues for five seconds or more and this wire feeder power is cut off.

The wire feeder will perform automatic recovery approximately one minute after the power is cut off.

- Overheating

The overheating lamp lights up if there is abnormal temperature and this wire feeder power is cut off.

The wire feeder will perform automatic recovery approximately one minute after the power is cut off.



8. Troubleshooting

Warning: Electric Shock/Injury

- Do not use the equipment if the equipment or your body is wet.
- Always be sure to disconnect the power cable when performing inspection or maintenance.
- Do not place hands in rotating parts while operating. You could be caught in the rotating parts.

Refer to the table below to perform inspection when the equipment is operating poorly. If you cannot resolve a problem after inspecting the equipment, request repair at the retail outlet where the equipment was purchased.

Faulty Operation

Symptom	Possible Causes	Remedy
Wire not feeding	1. Roller wear. 2. Foreign material has gotten into the gun cable. 3. Gun tip deformation. 4. Faulty motor operation. (Faulty cable connection)	1. Replace the rollers. 2. Clean the rollers and replace the liner. 3. Replace the tip. 4. Check the connections of the work clip and welding cable.
Wire speed is low	1. Wire feed speed adjustment dial is at improper position. 2. Faulty wire feeding. 3. Gun tip deformation.	1. Turn the dial to the right. 2. Clean the rollers and gun cable. 3. Replace the tip.
Wire speed is high	1. Wire feed speed adjustment dial is at improper position. 2. Faulty motor operation.	1. Turn the dial to the left. 2. Repair.
Wire feeding does not stop	1. Control board malfunction.	1. Stop the power input and repair. • Remove the work clip. • Stop the power output.
Gas does not flow or does not stop flowing; wire feeds	1. Gas supply is off or not supplied properly. 2. Gas valve malfunction. 3. Gas hose is cut or crushed. 4. Foreign material has gotten into the gun cable. 5. Control board malfunction.	1. Check the gas cylinder plug. 2. Check coil voltage and connections of gas valve. Check conduction of coil. Replace gas valve if necessary. 3. Clear blockage in gas hose or replace the hose. 4. Clean the rollers and replace the liner. 5. Repair.

Part Replacement Cycles (Rough Guide)

Affected Part	Part	Replacement Cycle
Gun	Gun tip	Approx. 1 week
	Liner	Approx. 6 months
	Nozzle	Approx. 3 months
Wire feed unit	Rollers	Approx. 1 year

* The part replacement cycle varies greatly depending on use conditions.

If any of the symptoms indicated below are present, replace the parts regardless of the replacement cycle.

Affected Part	Part	Symptom
Gun	Gun tip	• Gun tip is distorted • Hole has become excessively large due to wear • Wire shavings have accumulated on hole inner surface
	Liner	• Wire shavings have accumulated inside liner • Welding wire does not feed smoothly
	Nozzle	• Tip connection part is visible due to wear • Considerably damaged
Wire feed unit	Rollers	• Wear or chipping of knurled surface

Error Messages

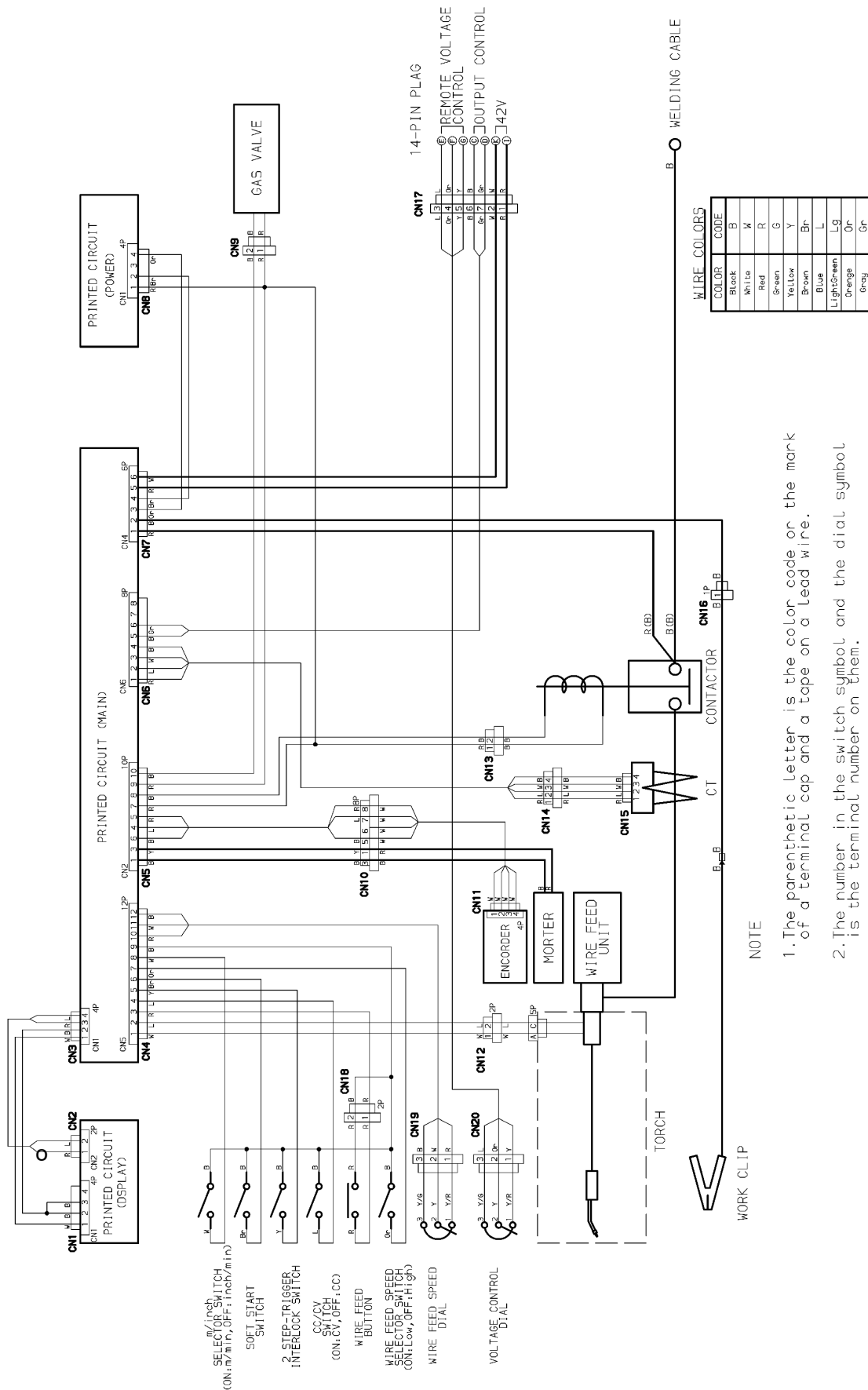
Display	Probable Causes	Recovery Measures
Motor overload lamp lights up	1. Foreign material has gotten into the gun cable 2. Gun tip deformation 3. Faulty roller operation 4. Gun cable is kinked or tightly bent 5. Pressure arm is excessively tightened 6. Spool shaft adjustment bolt is excessively tightened	1. Clean 2. Replace the tip 3. Repair 4. Arrange the gun cable so that it is free of kinks and tight bends 5. Adjust to the proper pressure value 6. Adjust to the proper strength
Overheating lamp lights up	1. Abnormal temperature	1. Wait until cool (Approx. 1 min.)

<Note>

- Maintenance of this equipment must be performed by specialized technicians.
- Always be sure to use genuine parts when replacing parts.
- When performing maintenance with doors or covers open, be sure that no other persons can accidentally come close to the equipment.
Close doors if momentarily leaving the equipment unattended.
- A simple inspection cannot always resolve some problems. If you cannot resolve a problem after inspecting the equipment, request repair at the retail outlet where the equipment was purchased.

9. Wiring Diagram

P (1 / 2)

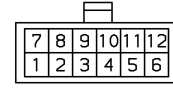




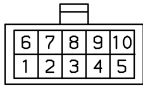
CN1, 3, 8, 14



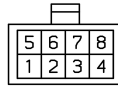
CN2, 12, 13, 18



CN4



CN5



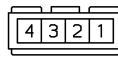
CN6, 10



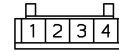
CN7



CN9



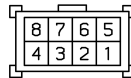
CN11



CN15



CN16



CN17



CN19, 20

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