



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.




## 1. SAFETY INFORMATION

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

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


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






## 2. ARC WELDING SAFETY PRECAUTIONS (continued)

	<b>CYLINDER can explode if damaged.</b>
<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"><li>1. Use only correct shielding gas cylinders, gas regulator, hoses, and fittings designed for the specific application; maintain them in good condition.</li><li>2. Protect compressed gas cylinders from excessive heat, mechanical shock, and arcs.</li><li>3. Keep the cylinder upright and securely chained to a stationary support or a rack to prevent falling or tipping.</li><li>4. Keep cylinders away from any welding or other electrical circuit.</li><li>5. Never touch cylinder with welding electrode.</li><li>6. Read and follow instructions on compressed gas cylinders, associated equipment, and the CGA publication P-1 listed in PRINCIPAL SAFETY STANDARDS.</li><li>7. Turn face away from valve outlet when opening cylinder valve.</li><li>8. Keep protective cap in place over valve except when gas cylinder is in use or connected for use.</li><li>9. Do not disassemble or repair the gas regulator except for the person authorized by the manufacturer of them.</li></ol>	

	<b>Rotating parts may cause injuries. Be sure to observe the following.</b>
<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"><li>1. Do not use this equipment if the case and the cover are removed.</li><li>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.</li><li>3. Do not put hands, fingers, hair or clothes near the rotating fans or wire feed roll.</li></ol>	

## 2. ARC WELDING SAFETY PRECAUTIONS (continued)

	<p><b>ARC WELDING work areas are potentially hazardous.</b></p>
<p><b>FALLING or MOVING machine can cause serious injury.</b></p> <ol style="list-style-type: none"><li><b>1. When hanging the welding power source by a crane, do not use the carrying handle.</b></li><li><b>2. Put the welding power source and wire feeder solidly on a flat surface.</b></li><li><b>3. Do not pull the welding power source across a floor laid with cables and hoses.</b></li><li><b>4. Do not put wire feeder on the welding power source.</b></li><li><b>5. Do not put the welding power source and wire feeder where they will pit or fall.</b></li></ol> <p><b>WELDING WIRE can cause puncture wounds.</b></p> <ol style="list-style-type: none"><li><b>1. Do not press gun trigger until instructed to do so.</b></li><li><b>2. Do not point gun toward any part of the body, other people, or any metal when threading welding wire.</b></li></ol>	



## 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.**

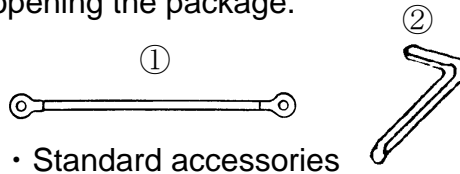
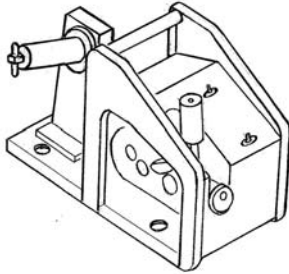
**Cutting And Welding Processes, NFPA Standard 51B, from National Fire Protection Association.**

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

### 3. CHECK OF PACKAGE CONTENTS

- Check of quantity when opening the package.

□ Wire feeder

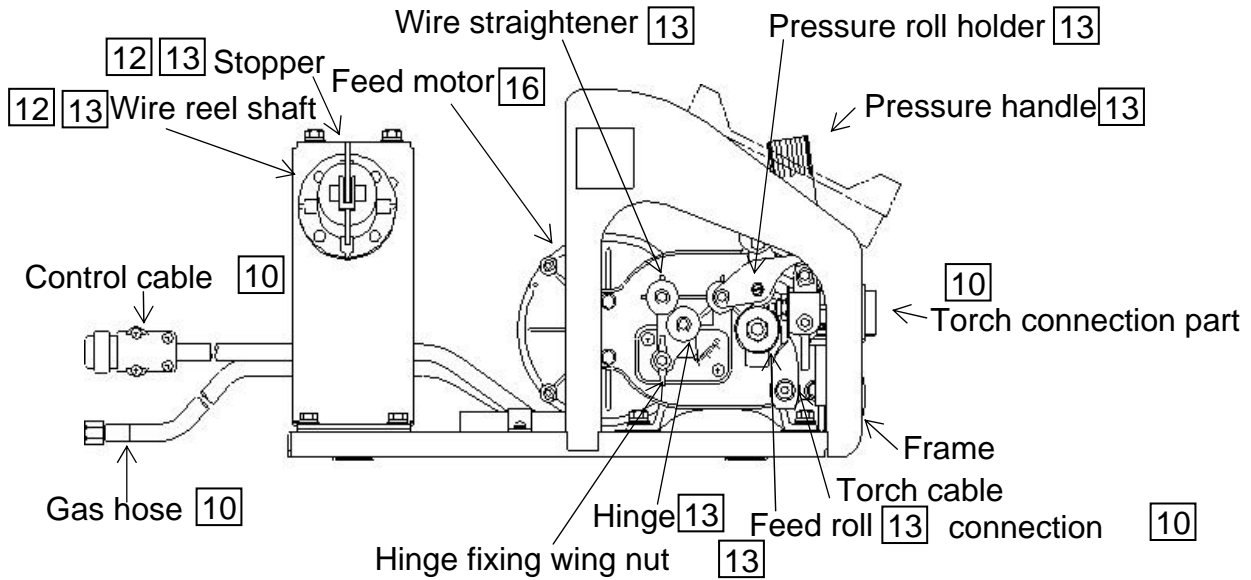


• Standard accessories

No.	Description	Specification	Q'ty
	Base metal cable	60mm <sup>2</sup> ×1.8m	1
	Allen wrench	No. 6	1




### 4. EACH DESIGNATION

- □ is indicated to remarks pages.






## 5. TRANSPORTATION AND INSTALLATION

### 5.1 Transportation

 WARNING	
Observe the following to prevent troubles in running and breakage of the welding machine.	
	<ul style="list-style-type: none"> <li>• When carrying or transferring the wire feeder, be sure to turn OFF input power supply by the line disconnect switch.</li> </ul>
	<ul style="list-style-type: none"> <li>• When carrying the wire feeder to height, remove the wire from wire feeder.</li> </ul>

### 5.2 Installation

 CAUTION	
In installing the welding machine, observe the following to prevent occurrence of fires by welding and physical damage by fume gas.	
	<ul style="list-style-type: none"> <li>• Do not install the welding machine near combustible materials and inflammable gas.</li> <li>• Remove combustible materials not to attach the spatter to them. If not removed, cover combustible materials with the noncombustible cover.</li> </ul>
	<ul style="list-style-type: none"> <li>• For preventing gas-poisoning at choking, use local exhaust equipment or use protectors for respiration.</li> <li>• In welding at narrow space, ventilate the place sufficiently or wear the protectors for respiration, and work under supervision by a trained supervisor.</li> </ul>

### INSTALLATION PLACE

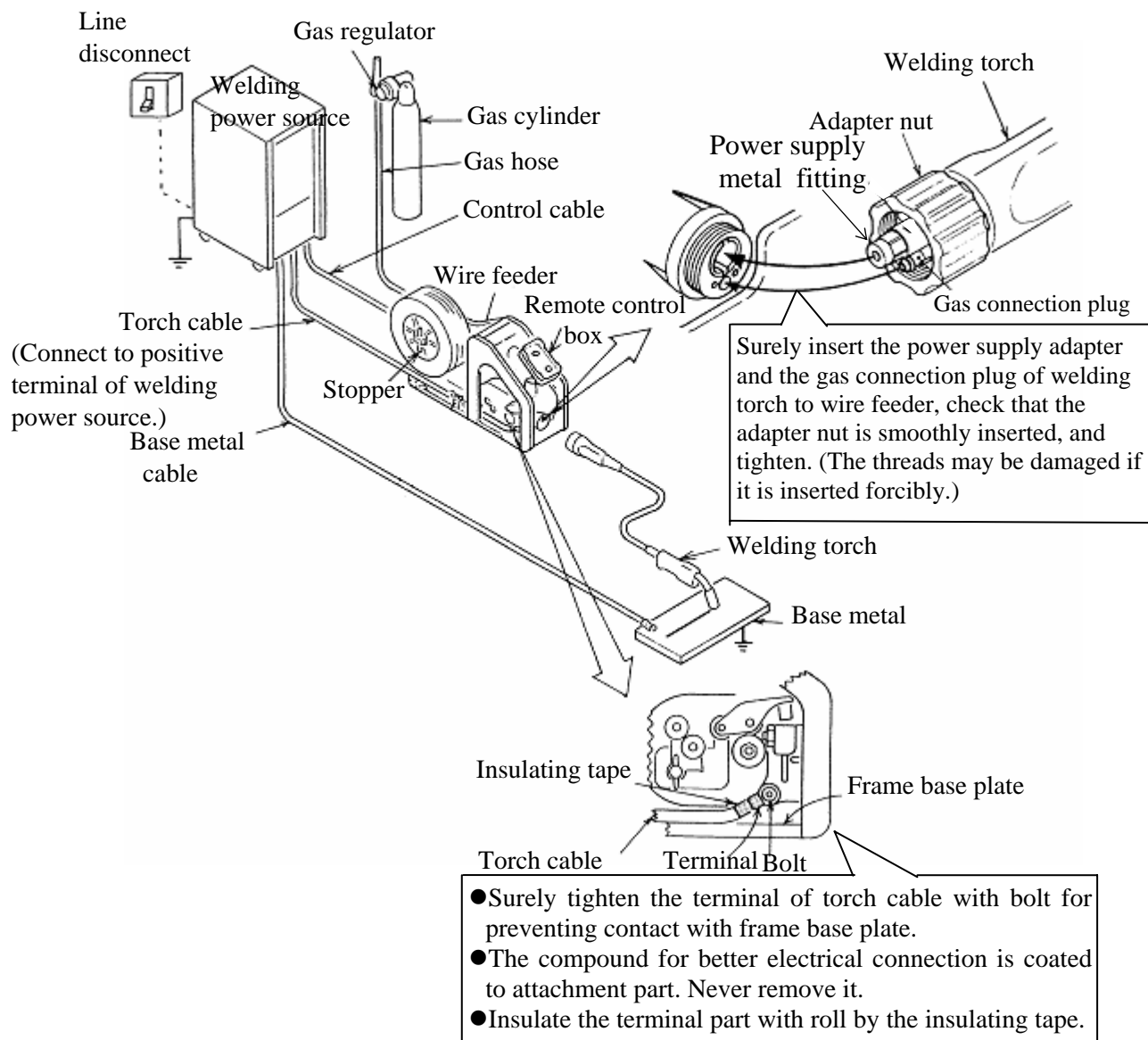
- Observe the following when selecting a installation place.
  - Less humidity, dirt and dust. And do not expose welding machine to direct sun light, wind and rain.
  - Ambient temperature is  $-10\sim 40$  .
  - There is no windows.  
(Use a wind shield to protect arc from wind, otherwise blow hole may be caused.)

## 6. CONNECTION

<b>⚠ WARNING</b>
● Be sure to turn OFF the line disconnect switch before connection.

<b>⚠ CAUTION</b>
● Securely tighten connecting parts of cables.

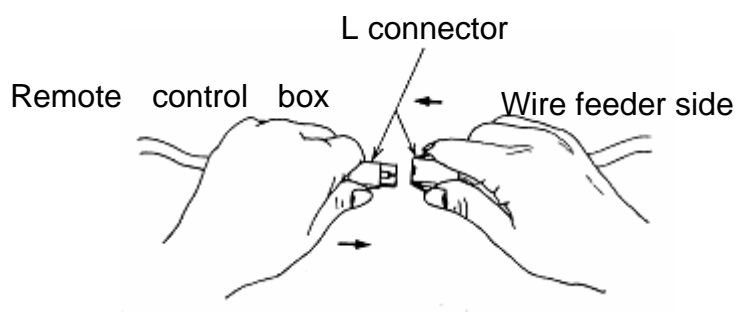
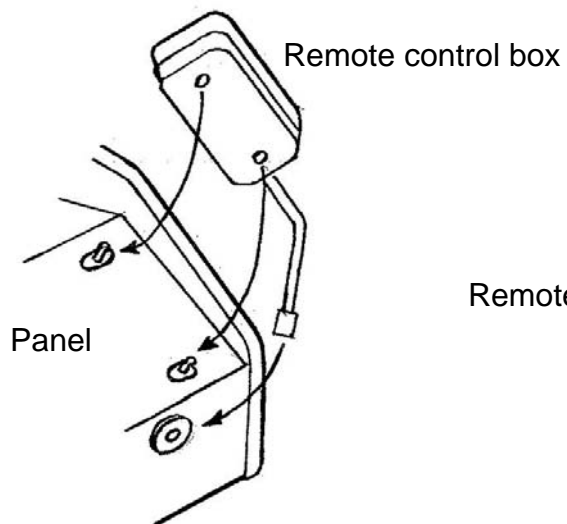
### 6.1 Connection of output side



## 6. CONNECTION (continued)


### 6.2 Attachment and connection of remote control box

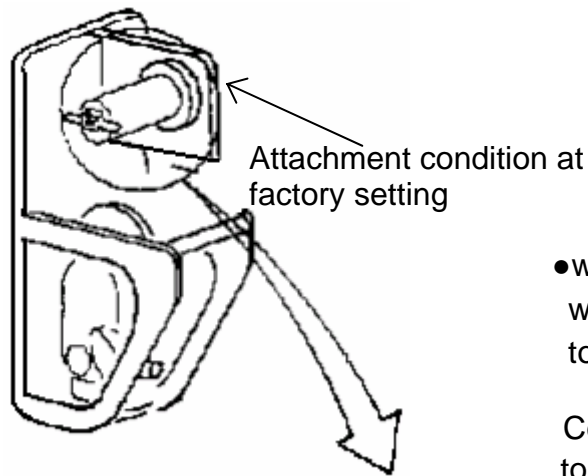
Connect the remote control cable to L connector of wire feeder around underside of the panel. Push the cable inside of frame to prevent it going out of frame after connection.



## 7. WELDING PREPARATION

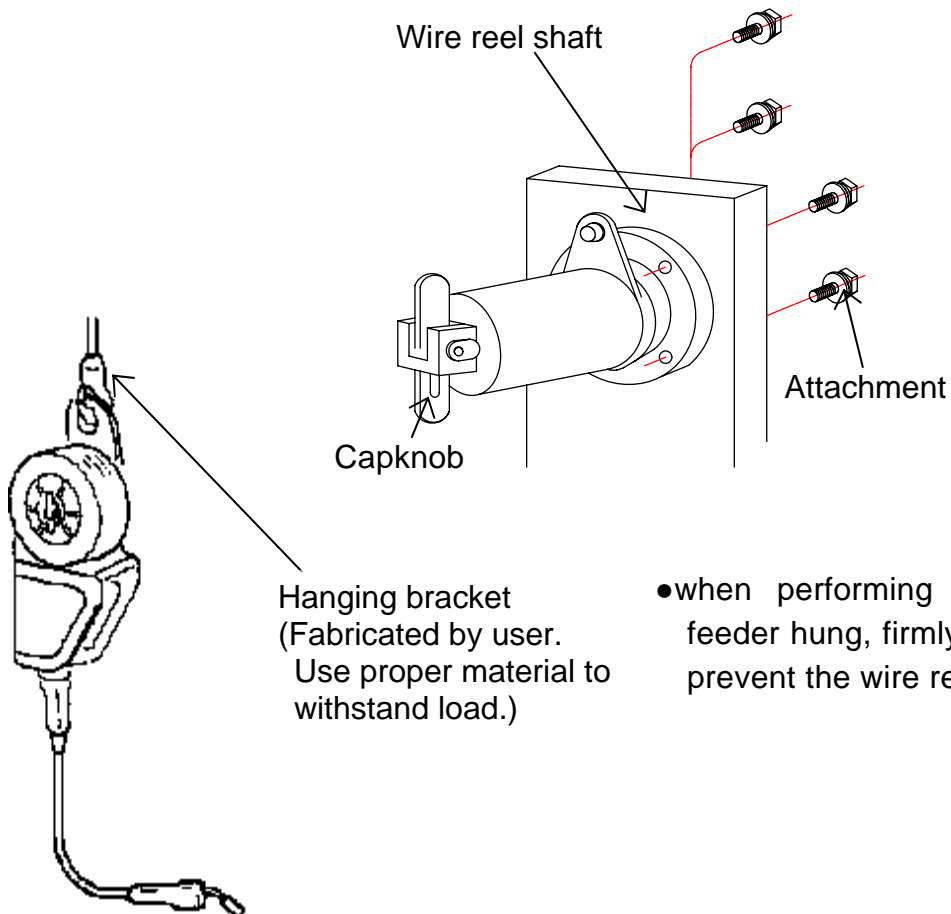
- 7.1 Replace the wire reel shaft at lowering  
( When wire feeder is not lowering, this operation is not necessary)

 CAUTION
●To prevent the wire dropping, be sure to observe the following at welding operation with hanging the wire feeder.



- when hanging the wire feeder, wire reel shaft should be turned to 90° counterclockwise.

Commended tightening torque: 12.4N·m

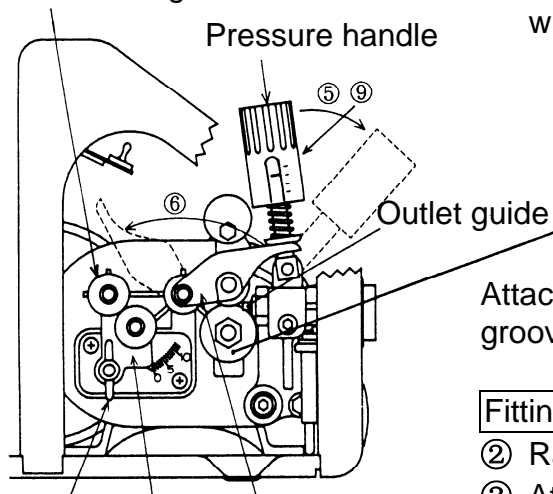


- when performing welding with the wire feeder hung, firmly tighten the cap knob to prevent the wire reel from falling down.

## 7. WELDING PREPARATION (continued)

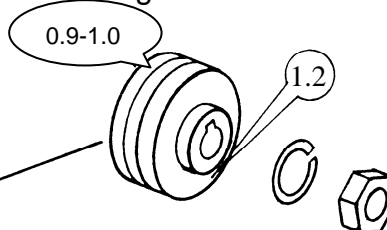
### 7.2 Fitting of wire

#### ⑦ Wire straightener



#### Checking wire size of the feed roll

- ① Check the groove of the feed roll and match with the welding wire size.

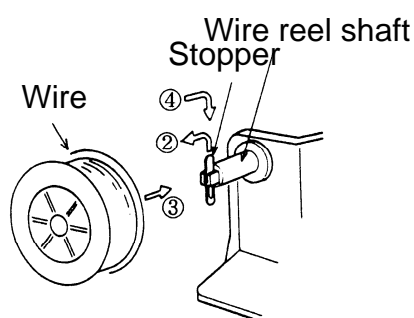


Attach the feed roll to the wire feeder, with proper groove facing out.

#### Fitting of wire

- ② Raise the stopper and bring it down.  
③ Attach the wire to the wire reel shaft.  
④ Return the stopper to original position.

#### ⑩ Wing nut Hing Pressure roll holder



#### ⚠ CAUTION

• Be sure to return the stopper vertically as it was to prevent dropping of the wire.

- ⑤ Bring down the pressure handle.  
⑥ Raise the pressure roll holder.  
⑦ Pull out the wire to let it through the wire straightener, and insert it into the outlet guide.  
⑧ Return the pressure roll holder and the pressure handle, in this holder.





#### Adjusting of pressure and straightener

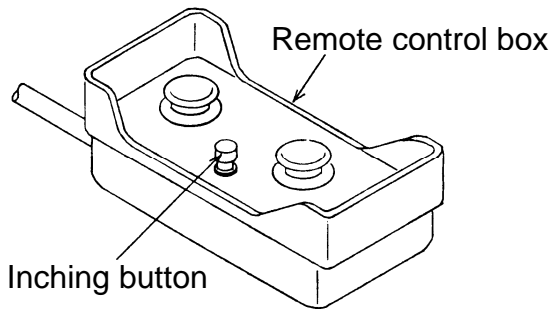
- ⑨ Adjust the pressure handle to set pressure force matching the wire size.  
⑩ Loosen the wing nut, adjust the hinge and fix it at an appropriate position.

Wire size	Wire pressure adjusting		Wire straightener adjusting
	Pressure handle scale		Straight hinge adjusting scale
	Solid wire	Flux cored wire	
φ 1.6	5~6	4~5	0~2
φ 1.2, 1.4	5~6	3~4	1~3
φ 1.0, 0.9	3~4	—	2~4
φ 0.8	2~3	—	3~5


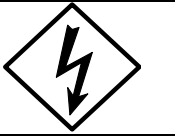

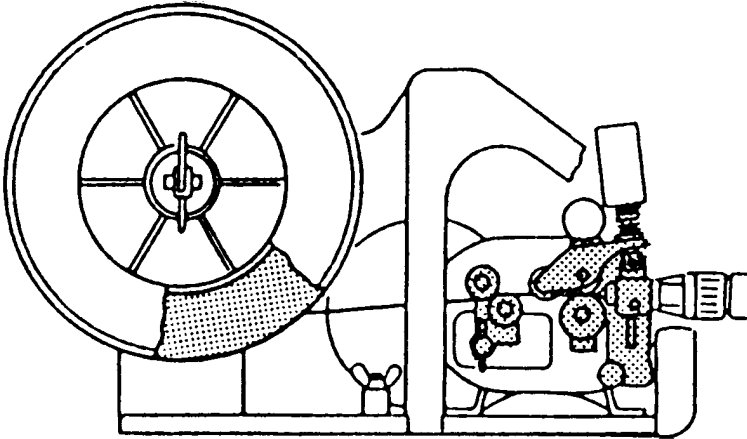
### 7. WELDING PREPARATION (continued)

#### 7.3 Wire feeding by inching operation

 <b>WARNING</b>	
	<ul style="list-style-type: none"><li>• Do not look into the tip hole to check on feeding of the wire while inching.</li></ul>
 <b>CAUTION</b>	
	<ul style="list-style-type: none"><li>• Do not put your hands, fingers, hair or clothes near the rotating parts of the feed roll, etc. while inching. Biting may occur, causing injuries.</li></ul>



Feed the wire while stretching the welding torch straight and pressing the inching button, and release from the button when the wire is projected from the welding torch tip by about 10mm.

 <b>WARNING</b>	
Touching the electrification parts may cause fatal electric shock and burn.	
	<ul style="list-style-type: none"><li>• Never touch electrically hot parts of wire and wire feeder.  part is indicated to electrically hot part when welding.</li></ul>
	

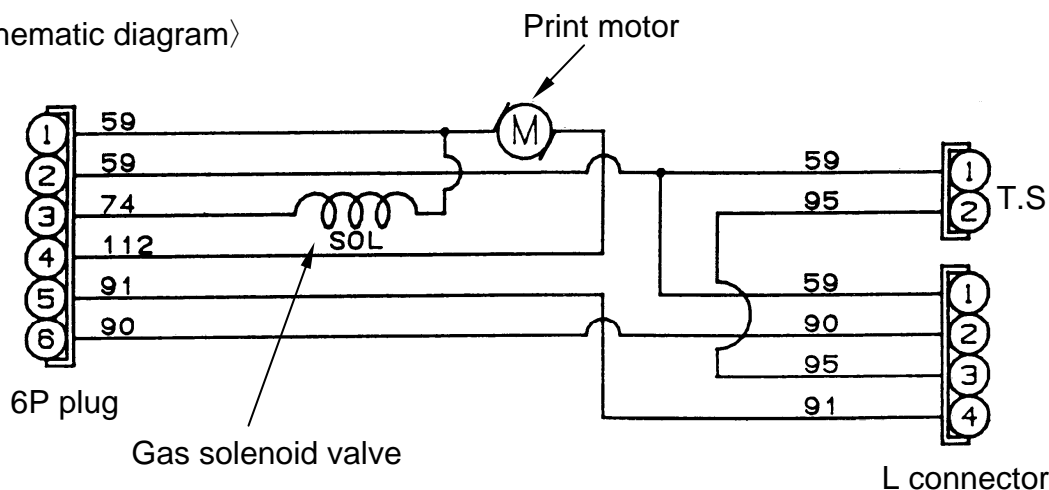


## 8. MAINTENANCE AND REPAIR OF TROUBLES

### 8.1 Inspection in working

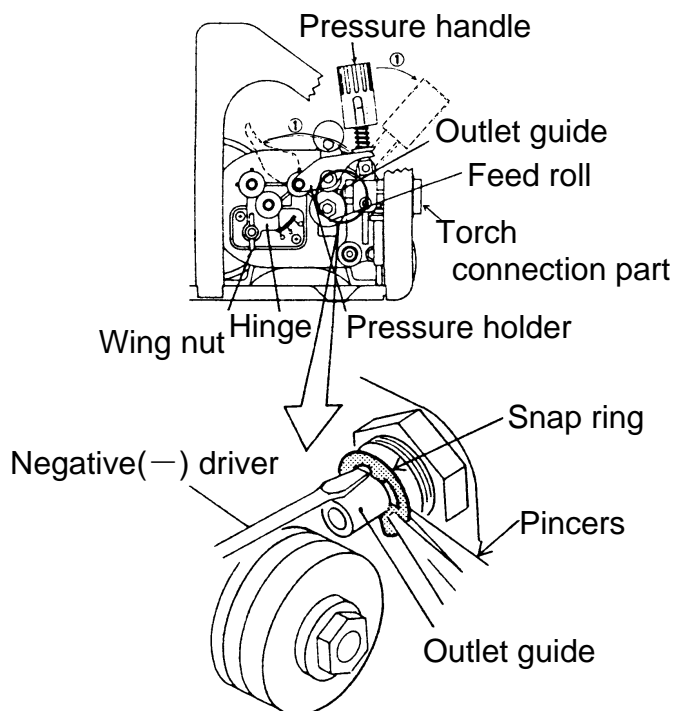
Parts	Inspection point	Trouble	Measures
Pressure scale	●Is pressure force matching with the wire size?	Pressure force is too weak or too strong.	Match pressure force with the value of wire pressure adjustment recommended in item 7.2.
Outlet guide	●Are not chips and dusts left around the inlet of the outlet guide and the feed roll?	Chips and dusts are left.	Remove chips and dusts.
Feed roll	●Are the wire size and the marking of the feed roll matching?	Wire size and the marking do not match.	Change to the feed roll matching with the wire size.
	●Wire touching surface condition.	The surface is worn.	Replace with a new one.
Pressure roll	●Does the roll rotate smoothly?	The roll does not rotate smoothly.	Replace with a new one
Wire straightener	●Are not chips and dusts left?	Chips and dusts are left.	Remove chips and dusts.
	●Does the roll rotate smoothly?	The roll does not rotate smoothly.	Remove chips and dusts, or replace with a new one.
Cable	●Is not the cable coating broken, or is not the cable liable to be disconnected?	The coating is broken or the cable is likely to be disconnected.	Replace with a new one.
	●Is not the connecting part loosened?	The connecting part is loosened.	Firmly tighten.
Gas hose	●Is not crazing formed?	Crazing is formed.	Replace with a new one.

〈Schematic diagram〉



## 8. MAINTENANCE AND REPAIR OF TROUBLES (continued)

### 8.2 Replacement of outlet guide

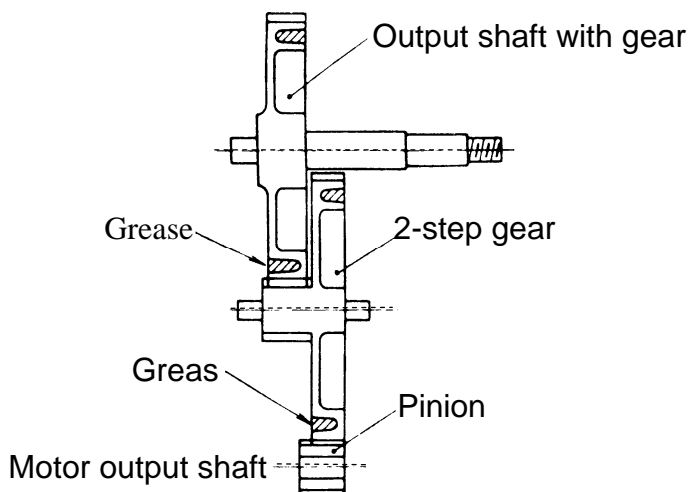


• In case of abrasion of the outlet guide, replace it as follows.

- ① Bring down pressure handle and pressure holder.
- ② Insert the negative (-) driver to gap of outlet guide with holding snap ring by pincers, and remove the snap ring.
- ③ Push out to outlet guide to torch connection part, and take it out.
- ④ Inset the new outlet guide from torch connection part, and insert snap ring.
- ⑤ Return the pressure roll holder and the pressure handle.

### 8.3 Yearly inspection

#### (1) Grease replacement of reduction gear



After removing aged grease, apply new to the gear tooth surface and side faces as shown in figure.

Use the grease No.1 of each lithium type.

#### ⚠ CAUTION

Apply grease on the side face of gear as shown in figure. Never fill the gear box with grease, otherwise motor will be burnt.

#### (2) Replacement of feed motor

#### ⚠ CAUTION

- Never disassemble the feed motor. Trouble may occur.
- Never replace and check of brushing friction.

Usually service life of brush is about 3,000 hours (about two years, if used six hours a day).

Replace the feed motor periodically.

## 9. PARTS LIST

If parts are required for replacement, direct order involving Description and Part No. to our sales agent or OTC's office directly.

Refer to 9.3 about optional accessories.

### 9.1 Wire feeding reduction gear (Refer to Fig. 2)

No.	Part No.	Description	Q'ty	Remarks
1	K5484B01	Gear case	1	
2	GPM12-005183	Print motor	1	
3		Screw (small)	4	M5-20
4		Spring washer	4	M5
5		Washer	4	M5
6		Nut	2	M5
7	K5114B01	Pinion	1	
8	3361-401	CS type snap ring	1	CSTW-10
9	K1821B02	2-step gear	1	
10	K5484B05	Bush	2	
11	K5484B04	Output shaft with gear	1	
12	K1123B06A	Insulating spacer	1	
13		Radial ball bearing	1	6000-ZZ
14	3361-206	Key	1	4x4x8
15		Radial ball bearing	1	6001-2RZ
16	K5512G00	Torch clamp	1 set	
16-2		Bolt with hexagon hole	(2)	M8-20
16-3		Spring washer	(1)	M8
16-4		Washer	(1)	M8
16-5	K5512C01	Gear case	1	
16-6	U1230B14A	Insulating washer	1	
16-7		Hexagon bolt	1	M6-35
16-8		Hexagon bolt	1	M6-40
16-9	K5512G03	conductor	1	
17	K5484B07	Spacer	1	
18	U1376H18	Feed roll (0.9-1.0/1.2)	1	
19		Washer	3	M10
20		Spring washer	1	M10
21		Nut	1	M10
22	K5512C02	Bolt fixing plate	1	
23		Screw (small)	2	M5-20
24		Spring washer	2	M5
25	K5578C00	Hinge assembly	1 set	
26	K5578B00	Pressure roll assembly	1 set	Assembly
27	K5578C01	Pressure roll holder	1	
28	K5578C02	Pressure roll shaft	1	

9. PARTS LIST(continued)

No.	Part No.	Description	Q'ty	Remarks
29		Radial ball bearing	1	6200-2RZ
30	K5512C03	Straight roll (1)	1	with bush
31	K5512C04	Straight roll (2)	2	with bush
32	3361-402	Thrust washer	4	STW-FT-8.0x0.5
33	3361-403	E-type snap ring	4	E-6
34	3361-503	Cup square neck bolt	1	B type M8-40
35	3361-505	Wing nut	1	M8
36	3361-208	Spring roll pin	1	φ 3-20
37	K5512E00	Central adapter	1 set	
37-1	K3985E01	Power metal fitting	(1)	
37-2	K5578E01	Outlet guide	(1)	φ 0.9-1.2
37-3	3361-405	E type snap ring	(1)	E-4
37-4	K3985E03	Block	(1)	
37-5	K3985E04	Hose nipple	(1)	
37-6	K5512E05	Sleeve	(1)	
37-7	K5512E04	Nut	(1)	M14
38	K5512D00	Pressure handle assembly	1 set	
39		Hexagon bolt	2	M6-25
40		Spring washer	3	M6
41		Nut	1	M6
41-1		Loose fixing nut	1	M6
42	K5512C06	Remote stopper	1	

9.2 Others (Refer to Fig. 1)

No.	Part No.	Description	Q'ty	Remarks
43	U5295B00	Frame body	1	
44		Gas solenoid valve	1	DF2-2-A (W-31156D)
45	W-W05070	Spindle type wire reel	1	
46	U5185J01	Wire reel cover	1	
47	U1997C02	Hose clamp	1	
48	U4179D00	Gas hose assembly	1	
49	U5299E00	Control cable assembly	1	
49-1		Plug socket	(1)	DPC25-6A
50	BQ0065	Indicating plate	1	

9. PARTS LIST(continued)

9.3 Optional accessories

(1) Extension cables and hoses

• Torch cables

Applicable current	(Rated current)		200A	350A	500A
Length 2m	Model		BKPT-2202	BKPT-3802	BKPT-6002
Length 7m	Model		BKPT-2207	BKPT-3807	BKPT-6007
Length 12m	Model		BKPT-2212	BKPT-3812	BKPT-6012
Length 17m	Model		BKPT-2217	BKPT-3817	BKPT-6017
Length 22m	Model		BKPT-2222	BKPT-3822	BKPT-6022

• Control cables (6P)

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

• Gas hoses

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

(2) Others

Part No.	Description	Q'ty	Remarks
U1369N01	Feed roll (For $\phi$ 1.2, 1.6)	1	
U1369N03	Feed roll (For $\phi$ 1.2, 1.4)	1	
U1376H13	Feed roll (For $\phi$ 1.4, 1.4)	1	
U1376H16	Feed roll (For $\phi$ 1.4, 1.6)	1	
U1376H02	Feed roll (For $\phi$ 0.8, 1.0)	1	
U1376H03	Feed roll (For $\phi$ 1.2, 1.2)		
K970E24	Feed roll (For $\phi$ 1.2, 1.2)	1	Ceramic type
K970E25	Feed roll (For $\phi$ 1.4, 1.4)	1	Ceramic type
U1997G00	Caster	1 set	For wire feeder moving
K536A00	Spindle type wire reel (Insulating type, with brake)	1	
K3985E10	Outlet guide	1	$\phi$ 1.2-1.6
U1997L00	Conduit connecting adapter	1	

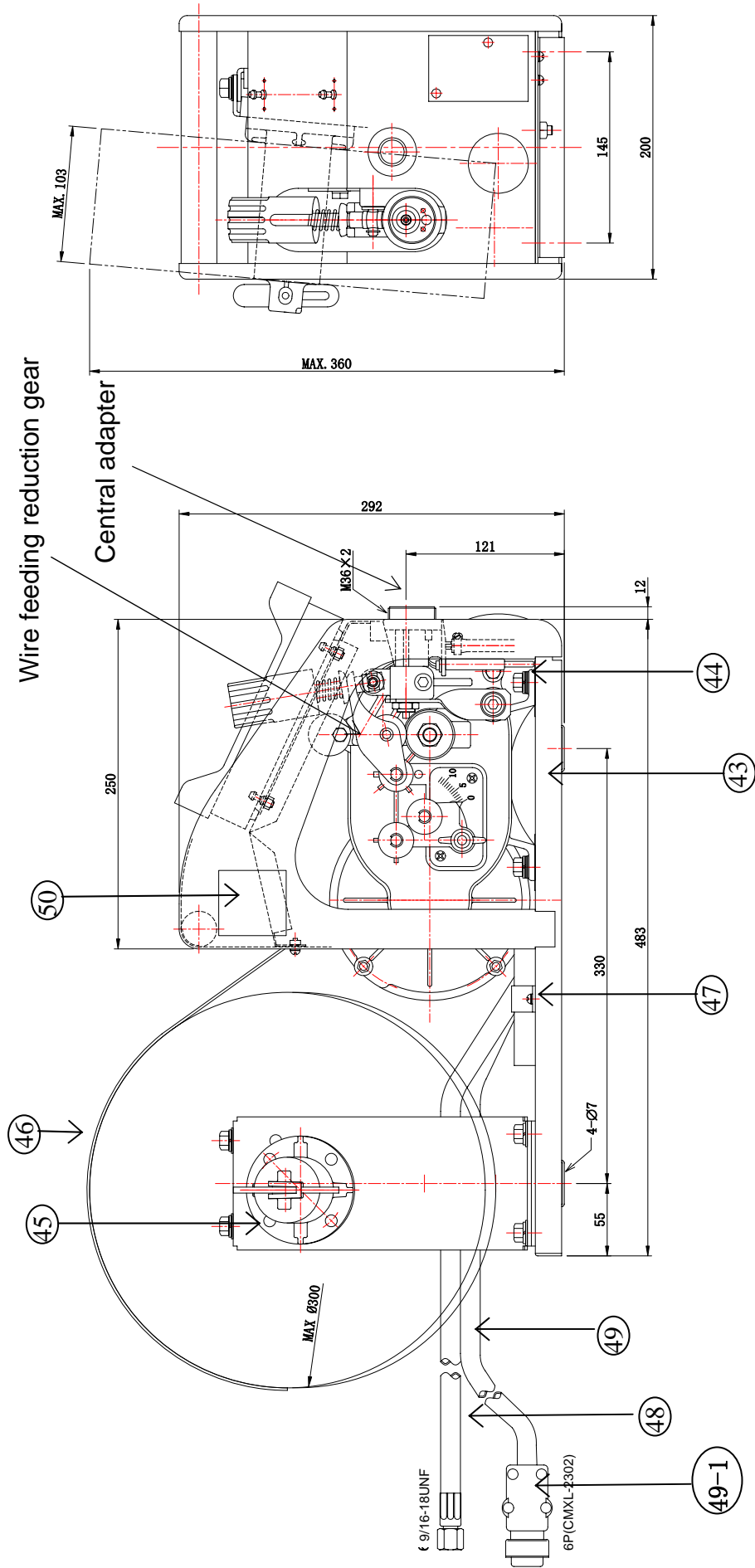


Fig. 1 External view

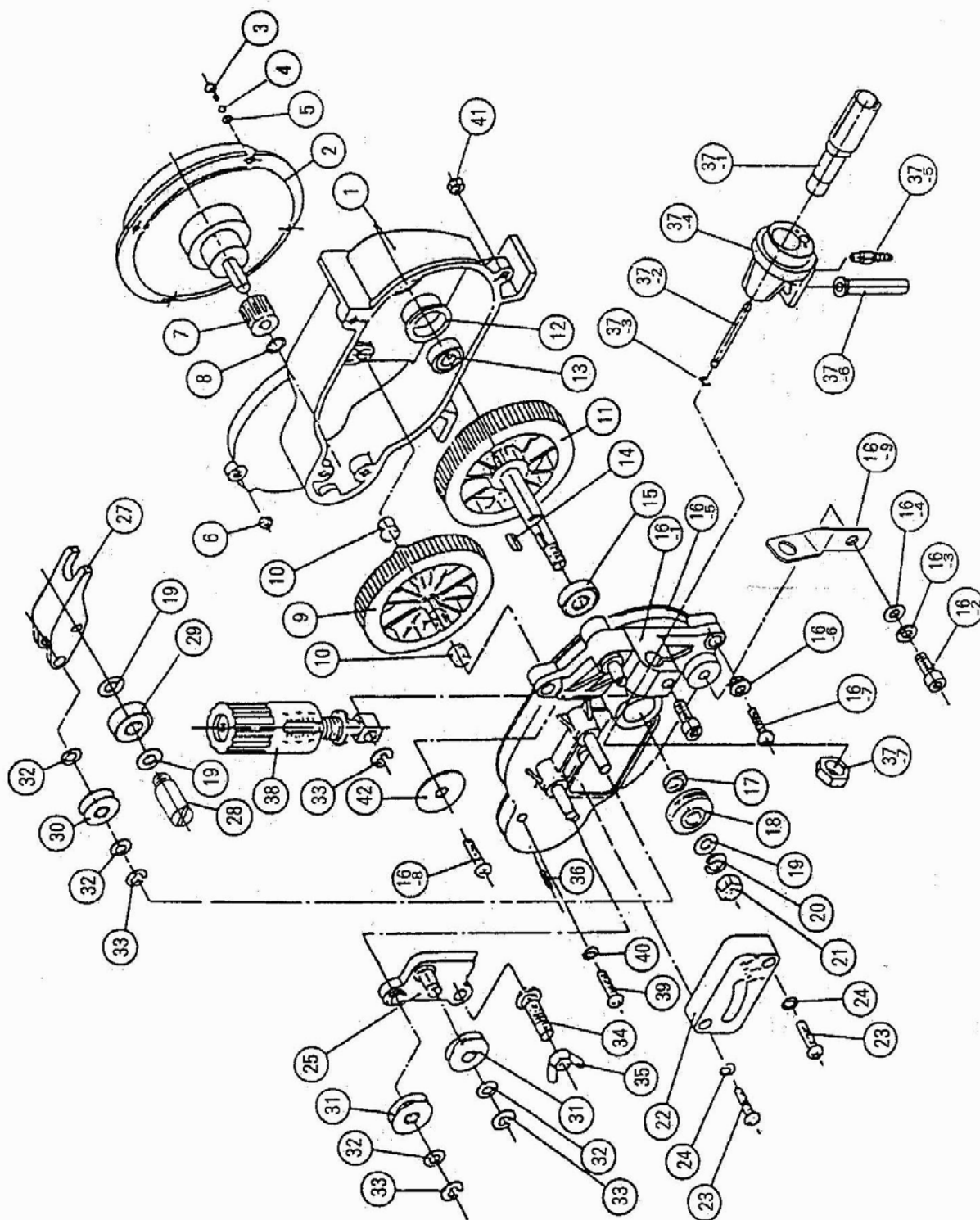


Fig. 2 Exploded view of wire feeding reduction gear unit

## 10. SPECIFICATIONS

## 10.1 Specifications

Model	CMXL-2302		
Applicable wire diameter	(0.8), 0.9, 1.0, 1.2, (1.4), (1.6)		
Applicable wire	Solid wire, flux cored wire		
Wire feeding speed	Max. 18m / min.		
Applicable wire reel	Shaft dia.	φ 50mm	
	Outer dia.	Max. φ 300mm	
	Width	103mm	
Applicable wire mass	Max. 25kg		
Approximate mass	14 kg		

## 10.2 Standard accessories

Description	Part No.	Q'ty	Remarks
Base metal cable	U1997J00	1	60mm <sup>2</sup> ×1.8m
Allen wrench	4739-280	1	No. 6 (M8)





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**Upon contact, advise MODEL and MANUAL NO.**