



OWNER'S MANUAL

FOR

MIG WELDING TORTCH

MODEL: WTCUA-2501 U4524
 WTCMUA-2501 U4527

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 & MECHATRONICS DIVISION

February 4, 2015



Upon contact, advise MODEL and MANUAL NO.

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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.
 CAUTION	CAUTION refers to minor personal injury or possible equipment damage.

2. ARC WELDING SAFETY PRECAUTIONS

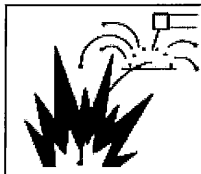
 WARNING	
ARC WELDING can be hazardous.	
<ol style="list-style-type: none"> 1. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. Be sure to: <ul style="list-style-type: none"> • Keep children away. • Keep pacemaker wearers away until consulting a doctor. 2. Read and understand the summarized 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)

	<p>ELECTRIC SHOCK can kill.</p>
<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. 	

	<p>ARC RAYS can burn eyes and skin: FLYING SPARKS AND HOT METAL can cause injury. NOISE can damage hearing.</p>
<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.

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.

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 base metal side cable 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, arc 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.

Arc welding produce fumes and gases. Breathing these fumes and gases can be hazardous to your health.


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)

	<p>CYLINDER can explode if damaged.</p>
<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. 	

		<p>Rotating parts may cause injuries. Be sure to observe the following.</p>
<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)

	<p>ARC WELDING work areas are potentially hazardous.</p>
<p>FALLING or MOVING machine can cause serious injury.</p> <ol style="list-style-type: none">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. <p>WELDING WIRE can cause puncture wounds.</p> <ol style="list-style-type: none">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.

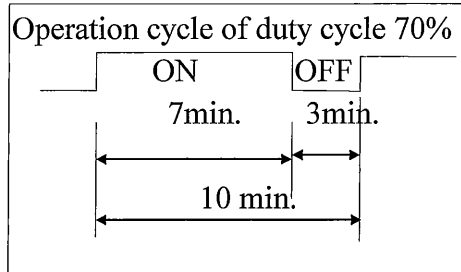
NOTE: The codes listed above may be improved or eliminated. Always refer to the updated codes.

3. NOTICE AT OPERATION

3.1 Rated duty cycle

 CAUTION
<p>● Use at the rated duty cycle or under. If exceeding the rated duty cycle, the welding machine may be damaged.</p>

- Rated duty cycle: 250A, 70% (MIG)
- Rated duty cycle 70% means that welding torch can be operated for seven minutes out of ten minutes, but it must be idle for three minutes.

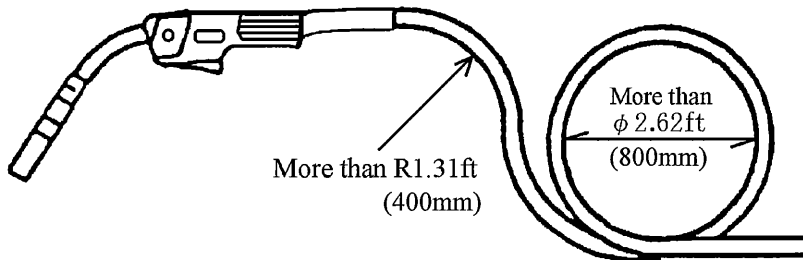


- If exceeding the rated duty cycle, temperature of welding torch rises, exceeding the allowable temperature and it can be a cause of damage to the equipment.



3.2 Bending of power cable

 CAUTION
<p>• Observe the following to acquire high welding performance.</p>

- If power cable of torch is bent excessively, smooth wire feeding will be hampered. Therefore, take care not to bend it too much.



3.3 Inching operation

 WARNING	
	<p>• Do not look into the tip to check on feeding of the wire while inching. Wire may extend out and stick your face and eyes, and it can be cause of injury.</p> <p>Do not hold the head of the welding torch near your face, eyes and body while inching. Wire may extend out and stick your face, eyes and body, and it can be cause of injury.</p>

- Straighten the welding torch, and feed wire by pushing the inching switch, then release switch when wire comes out about 10mm from the tip of welding torch.

3.4 Replacing of parts

 CAUTION

- Be sure to observe the followings for preventing burning.
- While welding, never touch the nozzle or tip due to the presence of high temperatures.
- While welding, use the protection goods.
- Replacing head of welding torch should be preformed after torch cools down.

 CAUTION

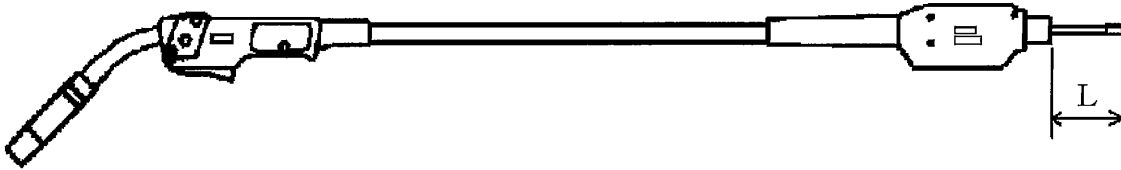
- In case of damaged parts, replace them with new parts for safety and quality.
- Be sure to use only genuine OTC parts.

3.5 Replacing of plastic liner

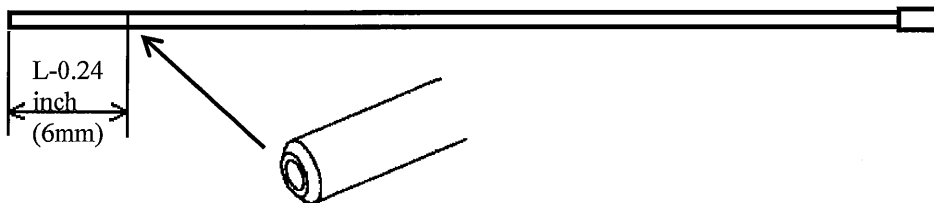
 CAUTION

- Since the plastic liner purchased as repair parts is made in fairly size, cut out according to the below procedure.

- (1) Stretch the power cable straight, insert the plastic liner and measure L dimension.



- (2) Pull out the plastic liner and cut it at the "L-0.24"(inch).



If burrs and fins are at the cutting part, remove them with a file, etc.

- (3) Insert the liner into the power cable again.

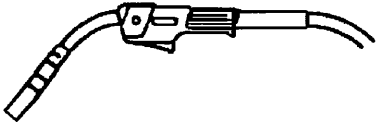

3.6 Cleaning of liner

 CAUTION

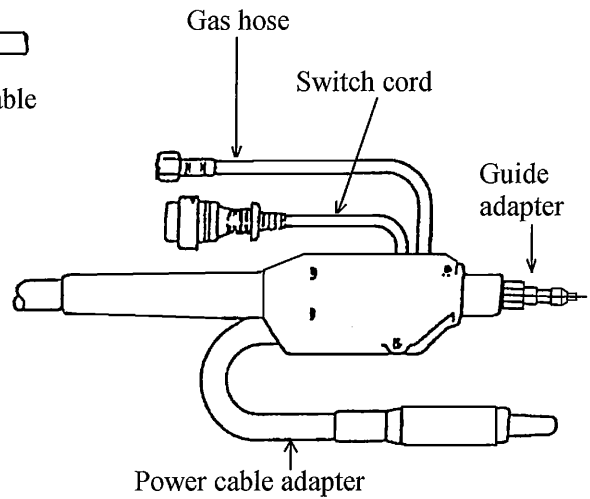
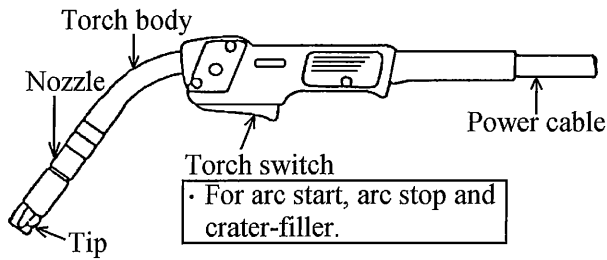
- If chips of wire or dust accumulate inside of liner, it can be a cause of poor welding and poor wire feed. Therefore, clean periodically by blowing dry air or argon gas.

4. STANDARD ACCESSORIES

● Check for contents of package after opening.

Welding torch	Accessory			
		Description	Specification	Q'ty
		Hex wrench	No. 4 (For M5)	1

5. DESCRIPTION OF EACH PART



6. PARTS LIST

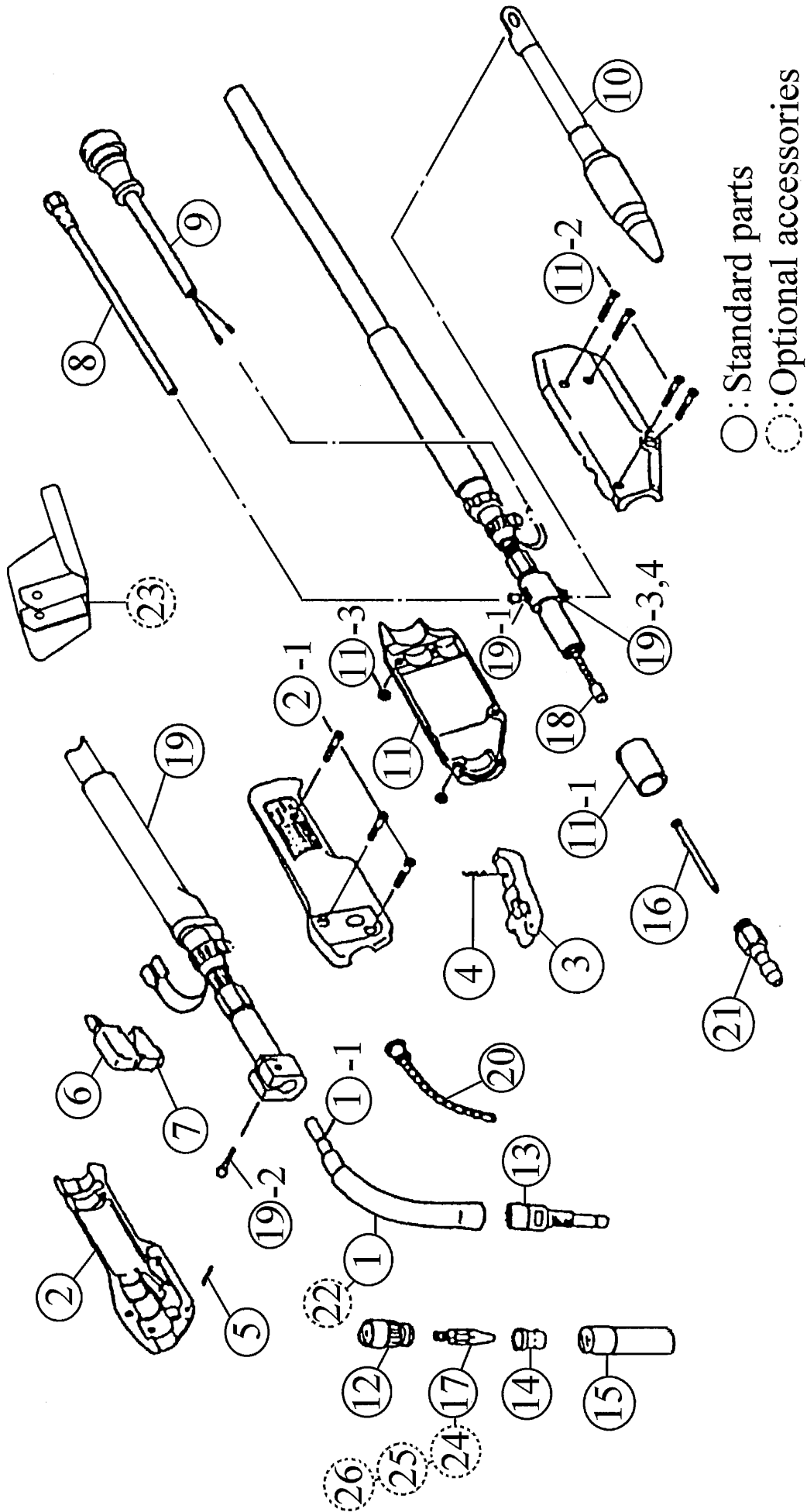
If parts are required for replacement, direct order involving Description and Part No. to our sales agent or OTC's office directly. For optional accessories, refer to 6.2.

6.1 Standard parts

Item	Part No.	Description	Q'ty
1	U4524L00	Torch body (R3.9"/100mm, 55°)	1
1-1	3570-124	"O" ring	(1)
2	U2853Y00	Handle (WTCUA)	1 set
2	U2853Y00	Handle (WTCMUA)	1 set
2-1	3361-816	Small screw (M4×20)	(3)
3	U2853C03	Trigger	1
4	U2853C04	Spring	1
5	3361-207	Flat pin (φ 4-16)	1
6	U4167T00	Micro switch	1
7	U2853C05	Switch cover	1
8	U2853E00	Gas hose	1
9	U4524F00	Switch code	1
10	U2853G00	Power cable adapter	1
11	U4524H00	Cable clamp (WTCUA)	1 set
11	U4527H00	Cable clamp (WTCMUA)	1set
11-1	U2853H03	Front cover	(1)
11-2	3361-817	Small screw (M4×25)	(4)
11-3	3361-808	Nut(M4)	(4)
12	U4173L00	Insulator	1
13	U4400G01	Tip body	1
14	U4173G02	Orifice	1
15	U4432G01	Nozzle (No. 10)	1
16	U2586F01	Outlet guide(.040"/1.0mm~3/64"/1.2mm)	1
17	K980C37	Tip 1.2CA(3/64"/1.2mm)	1
18	U4432G02	Plastic Liner (.040"/1.0mm~3/64"/1.2mm) 10ft/3m (WTCUA)	1
18	U4527J01	Plastic Liner (.040"/1.0m~3/64"/1.2mm) 13ft/4m (WTCMUA)	1
19	U4524D00	Power cable (10ft/3m) (WTCUA)	1
19	U4527D00	Power cable (13ft/4.0m) (WTCMUA)	1
19-1	U2853D08	Hose exit	(1)
19-2	3361-681	Bolt with hole (M5×14)	(1)
19-3	3361-818	Bolt with hole (M8×12)	(1)
19-4	3361-511	Flat washer (M8)	(1)
20	U4432G03	Inner Liner	1
21	U4524J01	Guide adapter	1

6.2 Optional accessories application

Item	Part No.	Description	Q'ty	Remarks
22	U4432B00	Torch body	1	R3.9"/100mm, 45°
23	U2075J01	Heat shield	1	
24	K980C36	Tip 1.0 CA(.040"/1.0mm)	1	
25	K980C39	Tip 1.0 CA(.040"/1.0mm)	1	
26	K980C40	Tip 1.2 CA(3/64"/1.2mm)	1	



Parts drawing

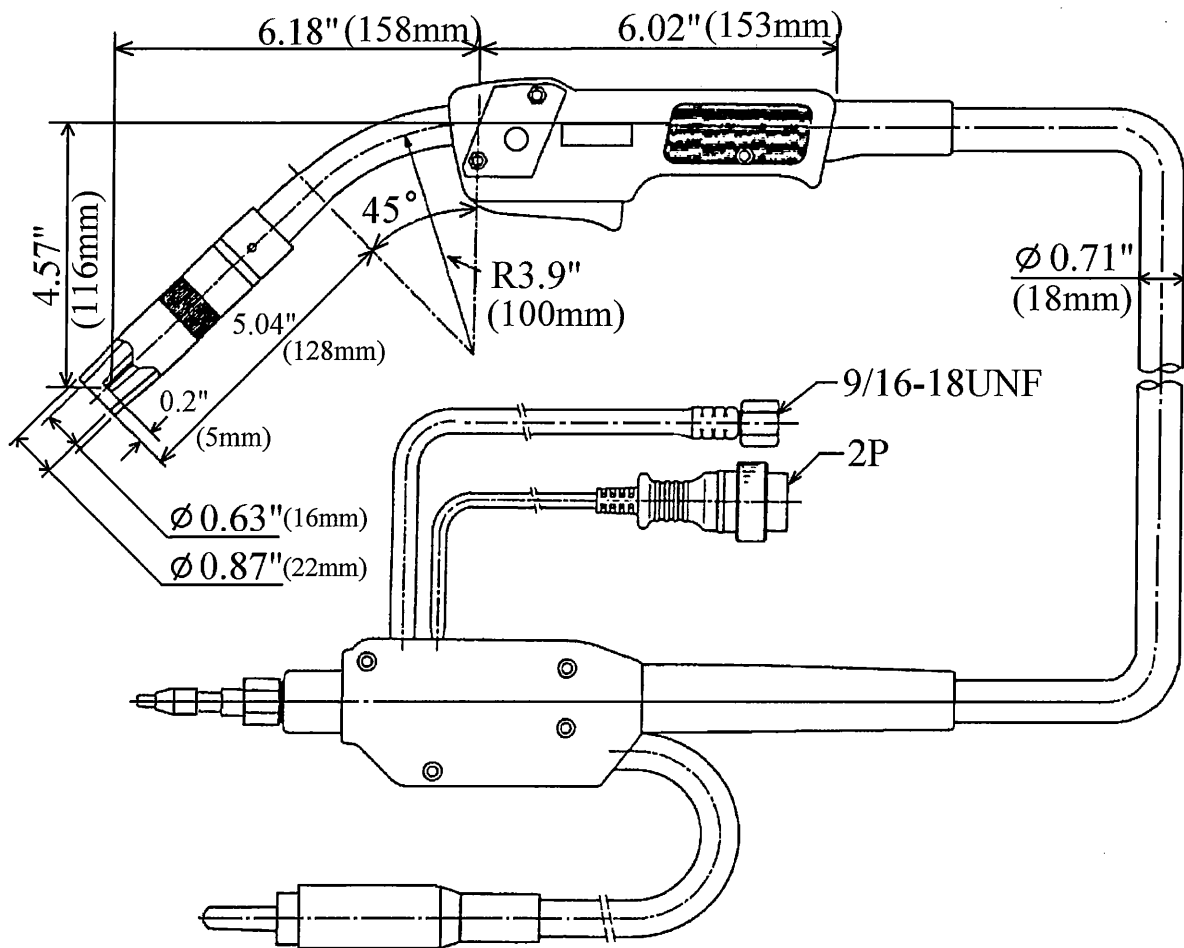
7. SPECIFICATION

7.1 Specification

Model	WTCUA-2501	WTCMUA-2501
Max. applicable current	250 A, MIG	
Duty cycle	70 % ,MIG	
Usable wire	Aluminum wire	
Usable wire size	(.040"/1.0 mm), 3/64"/1.2 mm	
Cable length	10 ft/3 m	13 ft/4.0 m
Mass. (With cable)	8.4 lb/3.8 kg	10 lb/4.5 kg

Note: When use the wire size of "()", optional parts are required.

7.2 External view



7.3 Wire feeder (Be able to combination type)

Model of welding torch	Wire feeder which needs connection adapter
WTCUA-2501	CM-144
WTCMUA-2501	CM(W)-145,146,147