

OWNER'S MANUAL

FOR

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 safe operation of welding equipment. Do not allow untrained personal to install, operate or maintain this equipment. Contact your distributor if you do not fully understand this manual.

DAIHEN Corporation WELDING PRODUCTS DIVISION

2: November 20, 1998 1: August 4, 1998


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 call attention and to identify different levels of hazard 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

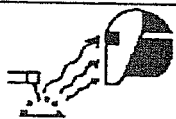
 WARNING	
ARC WELDING can be hazardous.	
◆	PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. Especially: <ul style="list-style-type: none">• Keep children away.• Pacemaker wearers should consult a doctor before use.
◆	Read and understand <ul style="list-style-type: none">• The summarized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



ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and welding circuit is electrically live whenever the output of the welding power source is on. The power line and internal circuit of the welding power source is also live when line disconnect switch is on. In semiautomatic or automatic wire welding, wire reel, drive assembly, and all metal parts touching the welding wire are electrically live.

1. Do not touch live electrical parts.
2. Wear dry, hole-free insulating gloves and body protection.
3. Insulate yourself from work and ground using dry insulating mats or covers.
4. Shut OFF all power at 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. Ground the workpiece.
7. Keep all panels and covers of this equipment securely in place.
8. Do not use worn, damaged, undersized, or poorly spliced cables.
9. Do not touch electrode and any metal object if POWER switch is ON.
10. Do not wrap weld cables around your body.
11. 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.

Arc rays from the welding produce intense heat and strong ultraviolet rays that can burn eyes and skin. Noise from some arc welding can damage hearing.

1. Wear a face shield with a proper shade of filter (See ANSI Z 49.1 listed in table SAFETY STANDARDS.) to protect your face and eyes when welding or watching.
2. Wear approved safety goggles.
3. Use protective screens or barriers to protect others from flash and glare: warn others not to watch 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.



WELDING can cause fire and explosion.

Sparks and spatter fly from the welding arc. The flying sparks and hot metal, spatter, hot workpiece, and hot equipment can cause fires and explosion.

1. Protect yourself and others from flying sparks and hot metal.
2. Do not weld where flying sparks can strike flammable material.
3. Remove all flammables within 35ft. (10.7m). If this is not possible, tightly, cover them with approved covers.
 - Be alert that welding sparks and hot metals from welding can easily go through small cracks and openings to adjacent areas.
4. Watch for fire, and keep a fire extinguisher nearby
 - Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on opposite side.
5. Do not weld on closed containers such as tanks or drums.

Accidental contact of electrode or welding wire to metal object can cause sparks, overheating, or fire.

6. Connect work cable to workpiece as close to the welding area as possible.
 - To prevent welding current from traveling long, possibly unknown paths and causing electric shock and fire hazards.
7. Remove stick electrode from holder; cut off wire at contact tip when not in use.
8. Do not use the welding power source for other than arc welding.
9. Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
 - Loose weld cable connection can cause undesired sparks and excessive heating.
10. Tighten all weld cable connections.

Chipping and grinding can cause flying metal. As welds cool, they can throw off slag.

11. Wear approved face shield or safety goggles. Side shields recommended.
12. Wear proper body protection to protect skin.



FUMES AND GASES can be hazardous to your health.

Arc welding may produce fumes and gases hazardous to 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 (MSDSs) and the manufacture's instruction for 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.



CYLINDER can explode if damaged.

Shielding gas cylinders contain high-pressure gas. If damaged, a cylinder can explode.

1. Use only correct gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them in good condition.
2. Protect gas cylinder from excessive heat, mechanical shock, and arcs.
3. Keep cylinder in an upright position securely chained to stationary support or 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, associate equipment, and CGA publication listed in table SAFETY STANDARDS.

Since gas cylinders are normally part of the welding process, be sure to treat carefully.

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.



Rotating parts may cause injuries. Be sure to observe the followings.

If hands, fingers, hair and clothes are put near the rotating parts of fans and wire feed roll of the feeder, biting may occur, causing injuries.

1. Do not use the welding machine in removing the case and the cover.
2. When the case is removed in maintenance/inspection and repair, certified operators or operators knowing the welding machine well must perform the working. By providing a fence, etc. around the welding machine, do not let other persons come near the welding machine carelessly.
3. Do not put your hands, fingers, hair and clothes near the fans and wire feed roll rotating.

ARC WELDING WORKSHOP is potentially hazardous.

FALLING, FALLING DOWN and MOVING machine can cause serious injury.

- ◆ Do not lift the welding power source with one eyebolt.
Use two eyebolts to lift it.
- ◆ Put the welding power source and wire feeder solidly on a flat surface.
- ◆ Do not pull the welding power source on floor laid with cables and hoses.
- ◆ Do not put wire feeder on the welding power source.
- ◆ Do not put the welding power source and wire feeder where they will pit or fall.

WELDING WIRE can cause puncture wounds.

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

PRINCIPAL SAFETY STANDARDS

Safety in Welding and Cutting, ANSI Standard Z49.1, from American Welding Society, 550 NW Lejeune Rd, Miami FL 33126.

Safety and Health Standards, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.20402.

Recommended Practices for Plasma Arc Cutting, American Welding Society Standard AWS C5.2, from American Welding Society, 550 NW Lejeune Rd, Miami, FL 33126.

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, 550 NW Lejeune Rd, Miami, FL 33126.

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Batterymarch Park, Quincy, MA02269.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.

Safe Practices For Occupation And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 1430 Broadway, New York, NY10018.

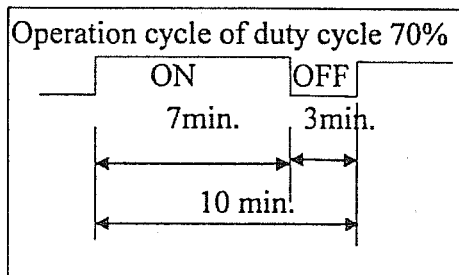
Cutting And Welding Processes, NFPA Standard 51B, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

3. OPERATION

3.1 Rated duty cycle


 CAUTION

- Use at the rated duty cycle or under. If exceeding the rated duty cycle, the welding machine may be damaged.
- 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.

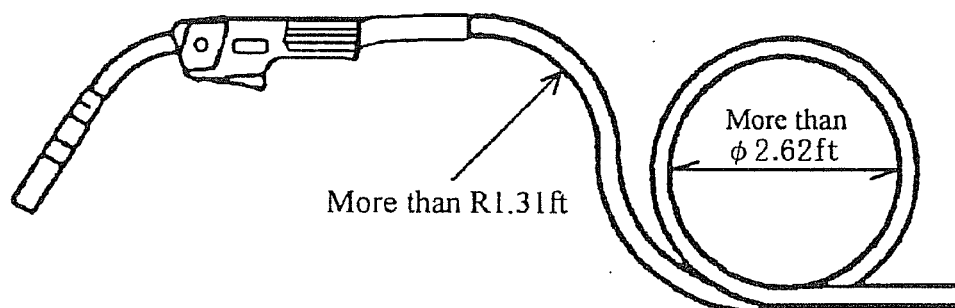


- If exceeding the rated duty cycle, temperature of welding torch rises, exceeding the allowable temperature and it can be a cause of damage to the equipment.


3.2 Bending of power cable

 CAUTION

- Observe the following to acquire high welding performance.
- 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



- 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.
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.

- 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

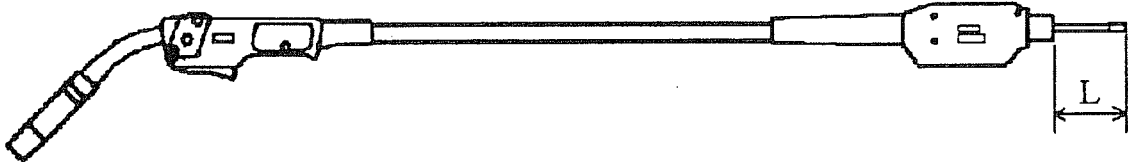
- In case of damaged parts, replace them with new parts for safety and quality.
- Be sure to use only genuine OTC parts.

3.5 Replacing of plastic liner

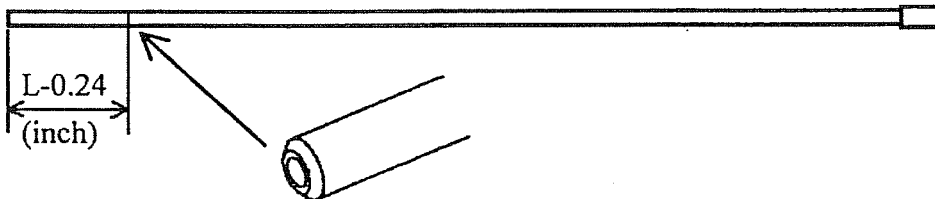
 CAUTION

- 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.

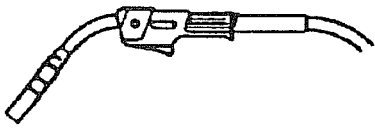

3.6 Cleaning of liner

 CAUTION

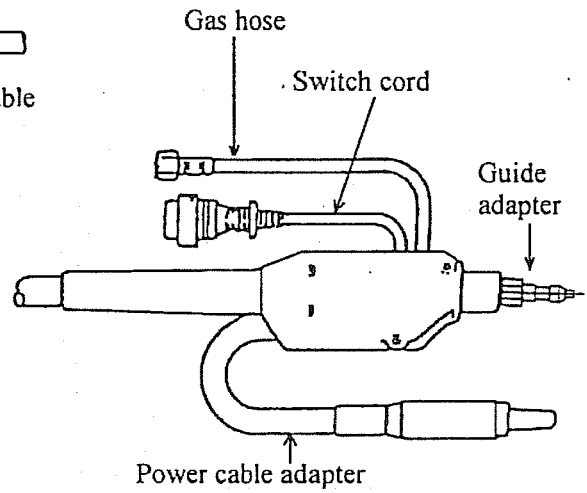
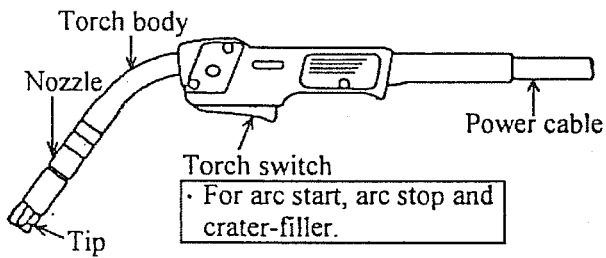
- If tips of wire or dust accumulate inside of liner, it can be a cause of poor welding and poor wire feed. Therefore, clean periodically by blowing dry air or argon gas.

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

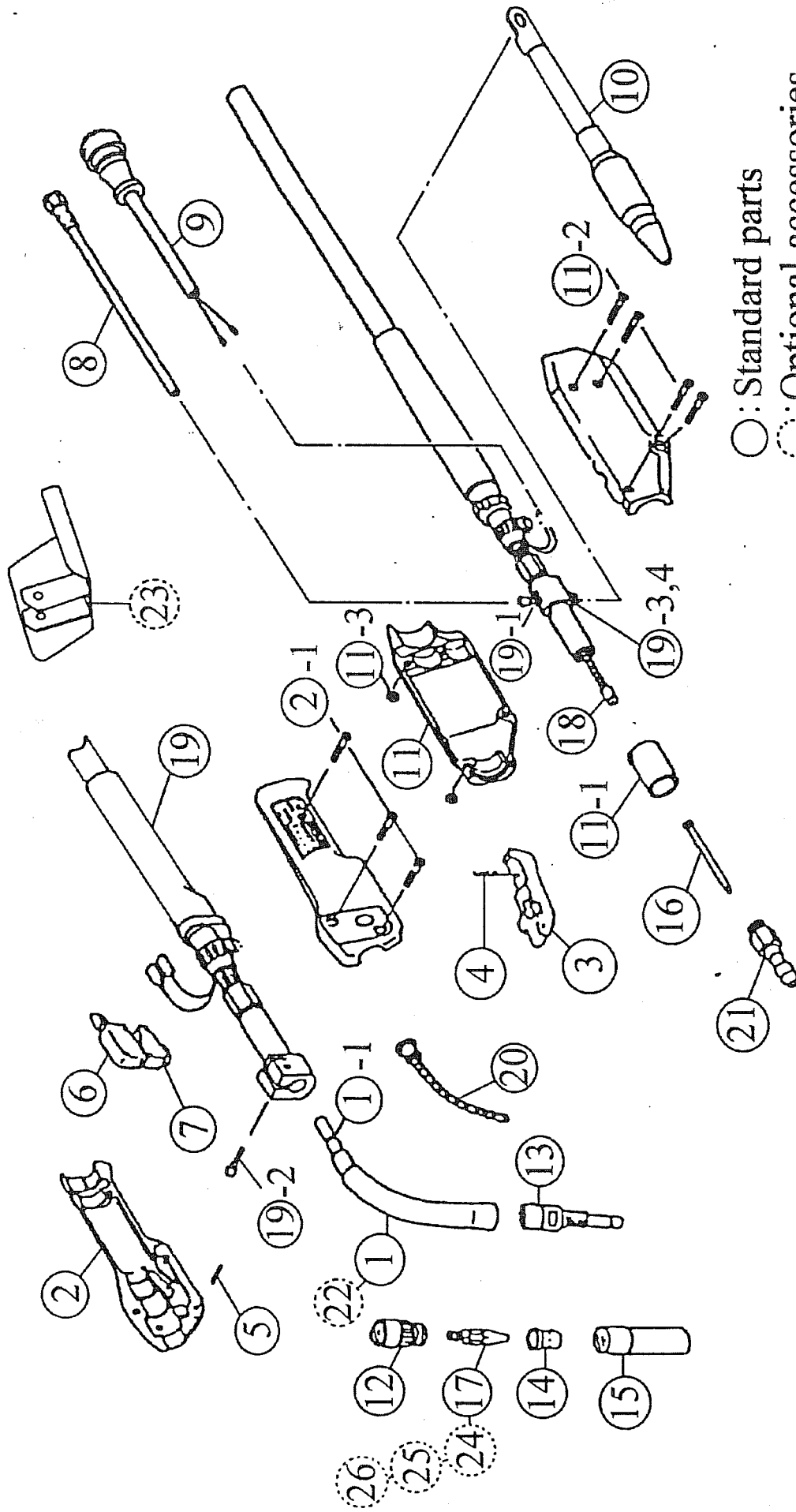
If parts are required for replacement, direct order involving Description and Part No. to our sales agent or OTC's office directly. For optional accessories, refer to 6.2.

6.1 Standard parts

Item	Part No.	Description	Q'ty
1	U4524L00	Torch body (R3.9", 55 °)	1
1-1	3570-124	"O" ring	(1)
2	U4524C00	Handle (WTCUA)	1 set
2	U4527C00	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	4254-015	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	U2774E03	Orifice	1
15	U4432G01	Nozzle (No. 10)	1
16	U2586F01	Outlet guide(.040"~3/64")	1
17	K980C43	Tip 1.2(3/64") CA	1
18	U4432G02	Plastic Liner (.040"~3/64") 10ft (WTCUA)	1
18	U4527J01	Plastic Liner (.040"~3/64") 13ft (WTCMUA)	1
19	U4524D00	Power cable (10ft) (WTCUA)	1
19	U4527D00	Power cable (13ft) (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	3361-804	Flat washer (M8)	(1)
20	U4432G03	Inner Liner	1
21	U4524J01	Guide adapter	1

6.2 Optional accessories application

Item	Parts No.	Description	Q'ty	Remarks
22	U4432B00	Torch body	1	R3.9", 45 °
23	U2075J01	Heat shield	1	
24	K980C42	Tip 1.0 (.040") CA	1	
25	K980C39	Tip 1.0 (.040") CA	1	Economy tip
26	K980C40	Tip 1.2 (3/64") CA	1	Economy tip



○: Standard parts
○: Optional accessories

Parts drawing

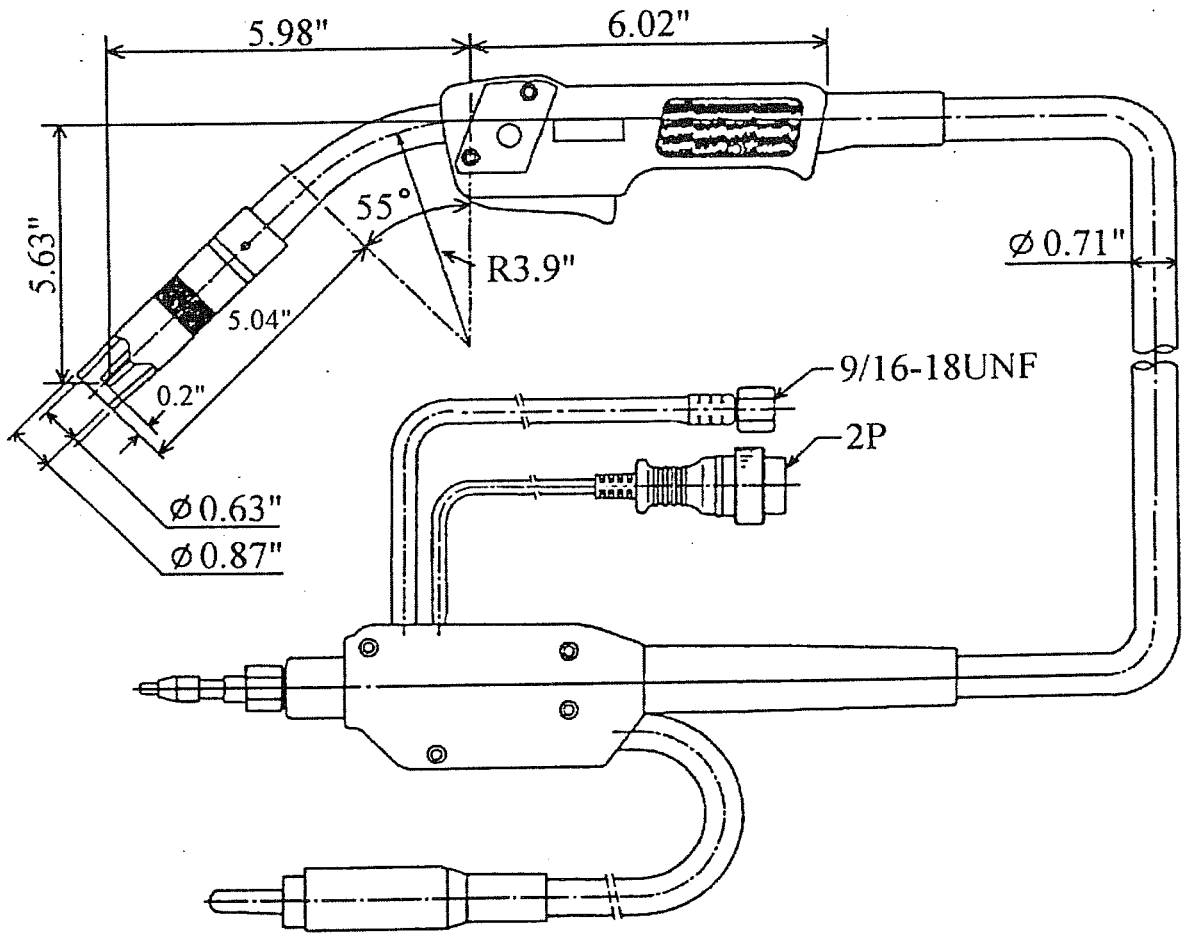
7. SPECIFICATION

7.1 Specification

Model	WTCUA-2501	WTCMUA-2501
Max. applicable current	250A, MIG	
Duty cycle	70% ,MIG	
Usable wire	Aluminum wire	
Usable wire size	(.040"), 3/64"	
Cable length	10 ft	13 ft
Mass. (With cable)	9 lb	10 lb

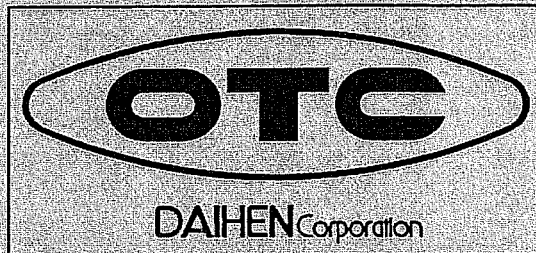
Note: When use the wire size of "()", optional parts are required.

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



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