



# OWNER'S      MANUAL

FOR

# CUTTING TORCH

MODEL: CT-0302      H896

**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 cutting 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 25, 2005

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.

## 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. PLASMA ARC CUTTING SAFETY PRECAUTIONS

<b>! WARNING</b>
<b>PLASMA ARC CUTTING 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>PLASMA ARC CUTTING is safe when precautions are taken.</b>

## 2. PLASMA ARC CUTTING SAFETY PRECAUTIONS (continued)

	<p><b>ELECTRIC SHOCK can kill.</b></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 plasma cutting all metal components in the torch and work circuits are electrically live.</p> <ol style="list-style-type: none"> <li>1. Do not touch live electrical parts.</li> <li>2. Wear dry insulating gloves and other body protection that are free of holes.</li> <li>3. Insulate yourself from work and ground using dry insulating mats or covers.</li> <li>4. Be sure to turn off the line disconnect switch before installing, changing torch parts or maintaining this equipment.</li> <li>5. Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.</li> <li>6. Keep all panels and covers of this equipment securely in place.</li> <li>7. Do not use worn, damaged, undersized, or poorly spliced cables.</li> <li>8. Do not touch electrode and any metal object if POWER switch is ON.</li> <li>9. Do not wrap cables around your body.</li> <li>10. Turn off POWER switch when not in use.</li> <li>11. Keep away from torch tip and pilot arc when trigger is pressed.</li> </ol>	

	<p><b>ARC RAYS can burn eyes and skin: FLYING SPARKS AND HOT METAL can cause injury. NOISE can damage hearing.</b></p>
<p>Arc rays from the cutting process produce intense heat and strong ultraviolet rays that can burn eyes and skin.</p> <p>Noise from some plasma arc cutting applications can damage hearing.</p> <ol style="list-style-type: none"> <li>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 cutting or watching a cutter work.</li> <li>2. Wear approved safety goggles. Side shields recommended.</li> <li>3. Use protective screens or barriers to protect others from flash and glare: warn others not to look at the arc.</li> <li>4. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection.</li> <li>5. Use approved earplugs or earmuffs if noise level is high.</li> </ol>	

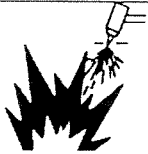
## 2. PLASMA ARC CUTTING SAFETY PRECAUTIONS (continued)



**FUMES AND GASES** can be hazardous to your health.

Cutting produces 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 cutting 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 to be cut, consumables, coatings, and cleaners.
5. Do not 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.



**CUTTING** can cause fire and explosion.

Sparks and dross fly off from the cutting arc. The flying sparks and hot metal, dross, hot base metal, and hot equipment can cause fire and explosion.

1. Protect yourself and others from flying sparks and hot metals.
2. Do not cut where flying sparks can strike flammable material.
3. Remove all flammables within 10m (33ft) of the cutting arc. If this is not possible, tightly, cover them with approved covers.
4. Be alert that cutting sparks and hot metals from cutting can easily pass through cracks and openings into adjacent areas.
5. Watch for fire, and keep a fire extinguisher nearby.
6. Be aware that cutting on a ceiling, floor, bulkhead, or partition can ignite a hidden fire.
7. Do not cut on closed containers such as tanks or drums.
8. Connect base metal side cable as close to the cutting area as possible to prevent the cutting current from traveling along unknown paths and causing electric shock and fire hazards.
9. Does not use the cutting power source for other than plasma cutting.
10. Wear oil-free protective garments such as leather gloves, a heavy shirt, cuffless trousers, boots, and a cap.
11. A loose cable connection can cause sparks and excessive heating.
12. Tighten all cable connections.
13. Wear approved face shield or safety goggles with side shields.
14. Wear flame-resistant earplugs or earmuffs to prevent sparks from entering ears.
15. Do not cut anything in an explosive dust-filled room or smoke-filled room.
16. Do not cut any container which is likely to contain high pressure materials like gas cylinders or high pressure pipes.
17. Do not cut containers which contains combustible material. Do not place the cutting machine on combustible material.

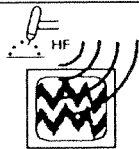
## 2. PLASMA ARC CUTTING SAFETY PRECAUTIONS (continued)



**CYLINDER can explode if damaged.**

A shielding gas cylinder contains high-pressure gas. If damaged, a cylinder can explode. Since gas cylinders are normally part of the cutting process, be sure to treat them carefully.

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 cutting or other electrical circuit.
5. Never touch cylinder with cutting 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.



**This equipment uses high frequency for arc starting.**

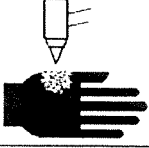
High-frequency may enter nearby units as shown below, causing electromagnetic trouble.


- \* Input cables, signal cables, telephone cables
- \* Radio sets, TV sets
- \* Computers and other control equipment
- \* Industrial detectors and safety units
- \* Pacemakers, hearing-aid sets

For preventing electromagnetic trouble,

1. Make the cable as shortest as possible.
2. Install cables along the floor or the ground as close as possible.
3. Put the base metal side cable together with the torch side cable.
4. Do not use a common base metal ground with other machines.
5. Tightly close all of the doors and covers of this equipment, and secure them.
6. Do not press the torch switch other than when ready to start the arc.
7. When electromagnetic trouble occurs, take the measures shown in this instruction manual until trouble is corrected.  
Please contact OTC-DAIHEN, when necessary.
8. Pacemaker wearers must not come near this equipment during operation until consulting your doctor.  
Operation of the pacemakers will be affected badly by high frequency.

## 2. PLASMA ARC CUTTING SAFETY PRECAUTIONS (continued)

	<p>PLASMA ARC can cause injury</p>
<ol style="list-style-type: none"> <li>1. Keep away from the torch tip.</li> <li>2. Do not grip material near the cutting path.</li> <li>3. The pilot arc can cause burns. Keep away from tip when trigger is pressed.</li> <li>4. Wear proper flame-retardant clothing covering all exposed body areas.</li> <li>5. Point torch away from your body and toward work when pressing the torch trigger.</li> <li>6. Turn off the line disconnect switch and POWER switch on the front panel before disassembling torch or changing torch parts.</li> <li>7. Use only torch('s) specified in the Owner's Manual.</li> </ol>	

	<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, 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 the cutting machine to keep others away from it.</li> <li>3. Do not put hands, fingers, hair or clothes near the rotating fans.</li> </ol>	

<p>PLASMA ARC CUTTING work areas are potentially hazardous.</p>	
<p>FALLING or MOVING machine can cause serious injury.</p> <ol style="list-style-type: none"> <li>1. Use both eyebolts, if installed, to lift the cutting power source.</li> <li>2. Put this equipment solidly on a flat surface.</li> <li>3. Do not pull this equipment across a floor laid with cables and hoses.</li> </ol>	

## PRINCIPAL SAFETY STANDARDS

Arc welding equipment – Installation and use, Technical Specification IEC 62081, from International Electrotechnical 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.



CUTTING TORCH CT-0302 H896

PARTS LIST

If parts are required for replacement, direct order involving description and part number to our sales agent or OTC's office directly.

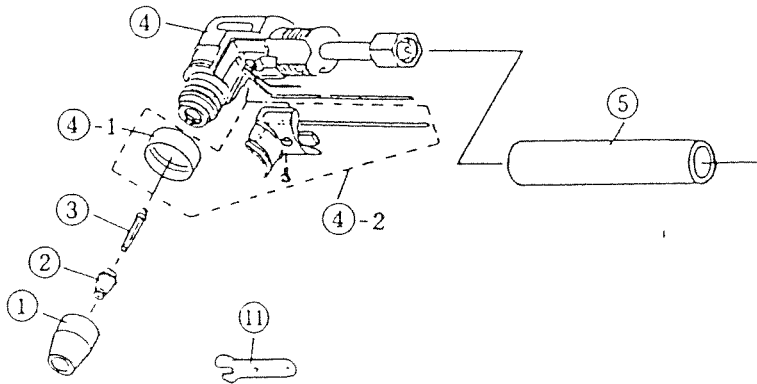


Fig. 1 Model CT-0302 (Curved type) H896

Table 1. Standard parts

No.	Parts No.	Description	Q'ty	Spare	Remarks
1	H705F03	Shield cup	1	1	
2	H705F04	Tip	1	3	
3	H705F05	Electrode	1	5	
4	H705L00	Torch body kit	1		Include 4-1,4-2
4-1	H690F01	Protection cover	(1)		
4-2	H807J00	Body cover kit	(1)		
5	H690F04	Handle	1		
6	K2081A00	Torch switch assembly	1		
7	H690F08	Hose sheath	1		
8	H630C00	Power cable hose	1		
9	H630E00	Torch switch code	1		
10	H699J00	Detective lead assembly	1		
11	H690G01	Wrench		1	

Table 2. Optional parts

No.	Parts No.	Description	Q'ty	Remarks
-	0302-001	Compass	1	
-	0302-010	Torch guide	1	
-	H705H01	Insulating sleeve	1	

Please refer to owner's manual for air plasma cutting power supply as to manual and maintenance.

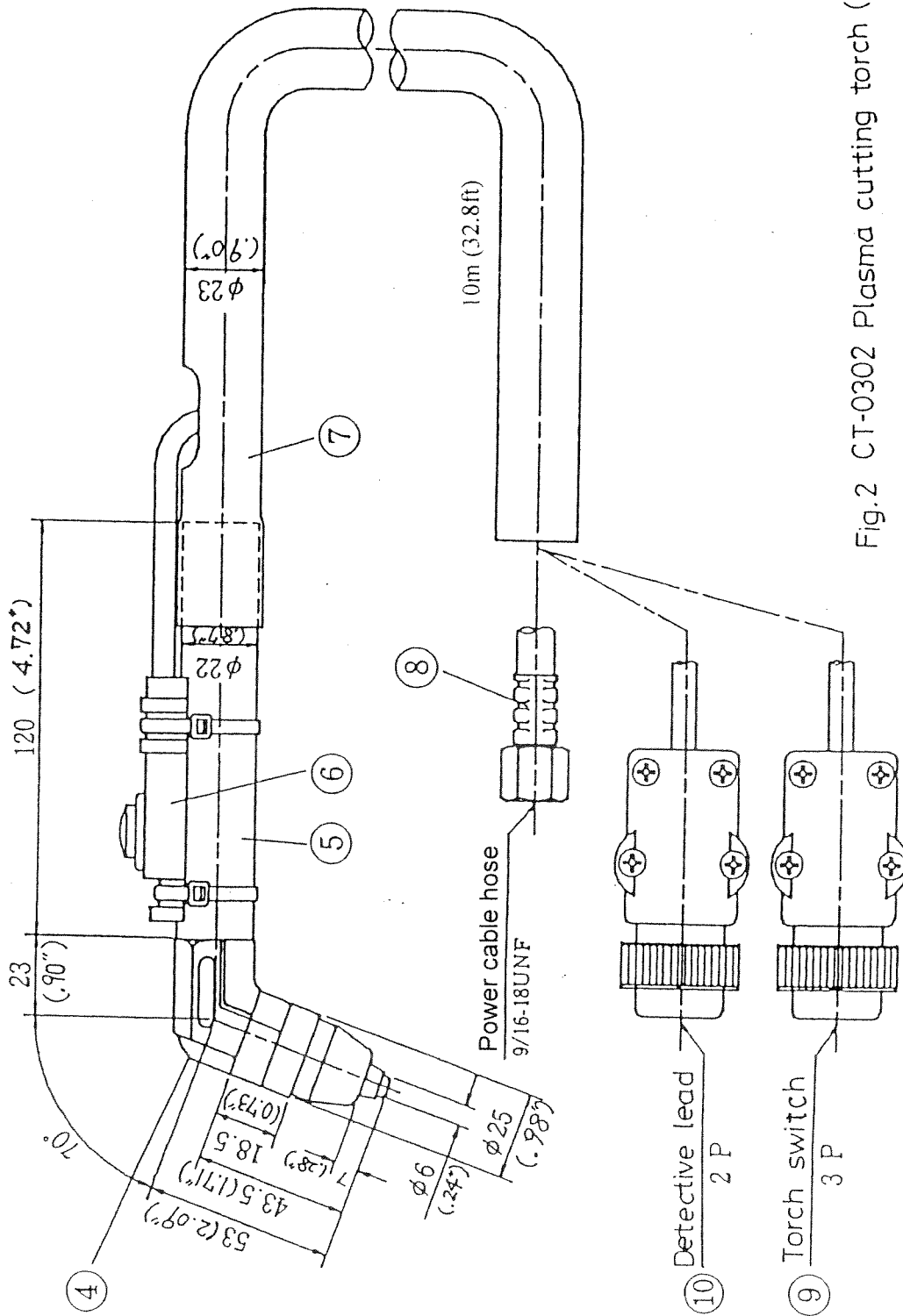


Fig.2 CT-0302 Plasma cutting torch ( Curved type)





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