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

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.

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

2. ARC WELDING SAFETY PRECAUTIONS

⚠️ WARNING  ARC WELDING can be hazardous.

♦ PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH.
  Especially:
  • Keep children away.
  • Pacemaker wearers should consult a doctor before use.

♦ Read and understand
  • 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.


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


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.

Operation cycle of duty cycle 70%

<table>
<thead>
<tr>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>7min.</td>
<td>3min.</td>
</tr>
<tr>
<td>10 min.</td>
<td></td>
</tr>
</tbody>
</table>

- 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 performed 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.

![Diagram of power cable with L dimension](image)

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

![Diagram of cut plastic liner](image)

   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.

<table>
<thead>
<tr>
<th>Welding torch</th>
<th>Accessory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td></td>
<td>Hex wrench</td>
</tr>
</tbody>
</table>

5. DESCRIPTION OF EACH PART

- Torch body
- Nozzle
- Tip
- Torch switch
  - For arc start, arc stop and crater-filler.
- Power cable
- Gas hose
- Switch cord
- Guide adapter
- Power cable adapter
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

<table>
<thead>
<tr>
<th>Item</th>
<th>Part No.</th>
<th>Description</th>
<th>Q'ty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>U4524L00</td>
<td>Torch body (R3.9&quot;, 55&quot;)</td>
<td>1</td>
</tr>
<tr>
<td>1-1</td>
<td>3570-124</td>
<td>&quot;O&quot; ring</td>
<td>(1)</td>
</tr>
<tr>
<td>2</td>
<td>U4524C00</td>
<td>Handle (WTCUA)</td>
<td>1 set</td>
</tr>
<tr>
<td>2</td>
<td>U4527C00</td>
<td>Handle (WTMUA)</td>
<td>1 set</td>
</tr>
<tr>
<td>2-1</td>
<td>3361-816</td>
<td>Small screw (M4 × 20)</td>
<td>(3)</td>
</tr>
<tr>
<td>3</td>
<td>U2853C03</td>
<td>Trigger</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>U2853C04</td>
<td>Spring</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>3361-207</td>
<td>Flat pin (φ 4-16)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>4254-015</td>
<td>Micro switch</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>U2853C05</td>
<td>Switch cover</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>U2853E00</td>
<td>Gas hose</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>U4524F00</td>
<td>Switch code</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>U2853G00</td>
<td>Power cable adapter</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>U4524H00</td>
<td>Cable clamp (WTCUA)</td>
<td>1 set</td>
</tr>
<tr>
<td>11-1</td>
<td>U4527H00</td>
<td>Cable clamp (WTMUA)</td>
<td>1 set</td>
</tr>
<tr>
<td>11-2</td>
<td>U2853H03</td>
<td>Front cover</td>
<td>(1)</td>
</tr>
<tr>
<td>11-3</td>
<td>3361-817</td>
<td>Small screw (M4 × 25)</td>
<td>(4)</td>
</tr>
<tr>
<td>12</td>
<td>U4173L00</td>
<td>Nut(M4)</td>
<td>(4)</td>
</tr>
<tr>
<td>13</td>
<td>U4400G01</td>
<td>Insulator</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>U2774E03</td>
<td>Tip body</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>U4432G01</td>
<td>Nozzle (No. 10)</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>U2586F01</td>
<td>Outlet guide(.040&quot;～3/64&quot;)</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>K980C43</td>
<td>Tip 1.2(3/64&quot;) CA</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>U4432G02</td>
<td>Plastic Liner (.040&quot;～3/64&quot;)</td>
<td>1 ft (WTCUA)</td>
</tr>
<tr>
<td>18</td>
<td>U4527J01</td>
<td>Plastic Liner (.040&quot;～3/64&quot;)</td>
<td>13 ft (WTMUA)</td>
</tr>
<tr>
<td>19</td>
<td>U4524D00</td>
<td>Power cable (10ft) (WTCUA)</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>U4527D00</td>
<td>Power cable (13ft) (WTMUA)</td>
<td>1</td>
</tr>
<tr>
<td>19-1</td>
<td>U2853D08</td>
<td>Hose exit</td>
<td>(1)</td>
</tr>
<tr>
<td>19-2</td>
<td>3361-681</td>
<td>Bolt with hole (M5 × 14)</td>
<td>(1)</td>
</tr>
<tr>
<td>19-3</td>
<td>3361-818</td>
<td>Bolt with hole (M8 × 12)</td>
<td>(1)</td>
</tr>
<tr>
<td>19-4</td>
<td>3361-804</td>
<td>Flat washer (M8)</td>
<td>(1)</td>
</tr>
<tr>
<td>20</td>
<td>U4432G03</td>
<td>Inner Liner</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>U4524J01</td>
<td>Guide adapter</td>
<td>1</td>
</tr>
</tbody>
</table>

6.2 Optional accessories application

<table>
<thead>
<tr>
<th>Item</th>
<th>Parts No.</th>
<th>Description</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>U4432B00</td>
<td>Torch body</td>
<td>1</td>
<td>R3.9&quot;, 45°</td>
</tr>
<tr>
<td>23</td>
<td>U2075J01</td>
<td>Heat shield</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>K980C42</td>
<td>Tip 1.0 (.040&quot;) CA</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>K980C39</td>
<td>Tip 1.0 (.040&quot;) CA</td>
<td>1</td>
<td>Economy tip</td>
</tr>
<tr>
<td>26</td>
<td>K980C40</td>
<td>Tip 1.2 (3/64&quot;) CA</td>
<td>1</td>
<td>Economy tip</td>
</tr>
</tbody>
</table>
7. SPECIFICATION

7.1 Specification

<table>
<thead>
<tr>
<th>Model</th>
<th>WTCUA-2501</th>
<th>WTCMUA-2501</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. applicable current</td>
<td>250A, MIG</td>
<td></td>
</tr>
<tr>
<td>Duty cycle</td>
<td>70% ,MIG</td>
<td></td>
</tr>
<tr>
<td>Usable wire</td>
<td>Aluminum wire</td>
<td></td>
</tr>
<tr>
<td>Usable wire size</td>
<td>(.040&quot;) , 3/64&quot;</td>
<td></td>
</tr>
<tr>
<td>Cable length</td>
<td>10 ft</td>
<td>13 ft</td>
</tr>
<tr>
<td>Mass. (With cable)</td>
<td>9 lb</td>
<td>10 lb</td>
</tr>
</tbody>
</table>

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

7.2 External view

7.3 Wire feeder (Be able to combination type)

<table>
<thead>
<tr>
<th>Model of welding torch</th>
<th>Wire feeder which needs connection adapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTCUA-2501</td>
<td>CM-144</td>
</tr>
<tr>
<td>WTCMUA-2501</td>
<td>CM(W)-145,146,147</td>
</tr>
</tbody>
</table>
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