

WELD *The TIG Welder's Choice*

CRAFT®



TIG (GTAW) Welding

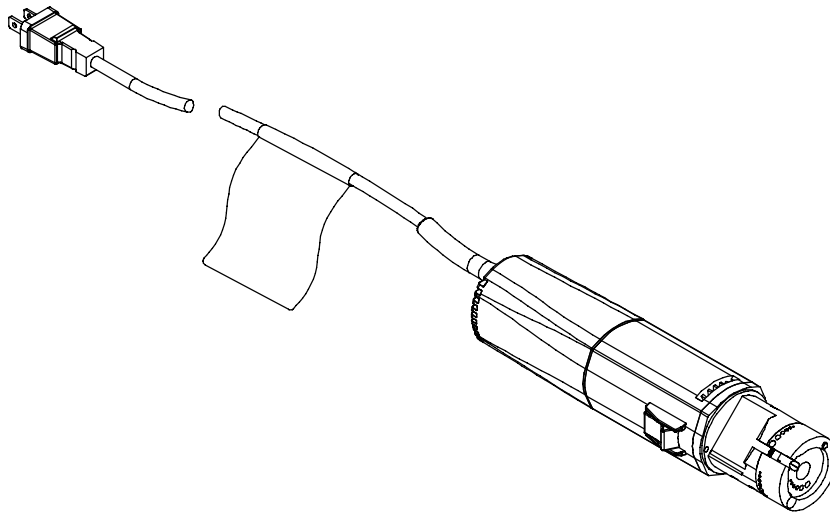
Description



Tungsten Grinder

Triad Tungsten Grinder

TTG Plus



Owner's Manual
Manuel de L'utilisateur
Manual del Operador

Weldcraft.com

File: TIG (GTAW)



TABLE OF CONTENTS

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING	1
1-1. Symbol Usage	1
1-2. Tungsten Grinding Hazards	1
1-3. California Proposition 65 Warnings	2
1-4. Principal Safety Standards	2
SECTION 2 – DEFINITIONS	3
2-1. Manufacturer's Rating Label For CE Products	3
2-2. Symbols And Definitions	3
SECTION 3 – SPECIFICATIONS	4
3-1. Description	4
3-2. Included With Your Unit	4
3-3. Specifications	4
SECTION 4 – INSTALLATION	5
4-1. Connecting Input Power	5
4-2. Connecting Grinder To Exhaust (Vacuum) Hose	5
SECTION 5 – OPERATION	6
5-1. Grinder Components	6
5-2. Grinding And Cutting Electrodes	7
5-3. Replacing Grinding Wheels	8
5-4. Installing Optional Double-Decker Kit	9
5-5. Installing Grinder Mounting Bracket	10
SECTION 6 – MAINTENANCE & TROUBLESHOOTING	11
6-1. Routine Maintenance	11
6-2. Troubleshooting	11
SECTION 7 – PARTS LIST	12

SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

Tung_Grind 2010-05

 Protect yourself and others from injury — read and follow these precautions.

1-1. Symbol Usage



DANGER! – Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

NOTICE – Indicates statements not related to personal injury.

 Indicates special instructions.



This group of symbols means Warning! Watch Out! ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

1-2. Tungsten Grinding Hazards



The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-4. Read and follow all Safety Standards.



Only qualified persons should install, operate, maintain, and repair this unit.



During operation, keep everybody, especially children, away.



ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The input power circuit and machine internal circuits are also live when power is on. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Disconnect input power before installing or servicing this equipment.
- Properly install this equipment according to its Owner's Manual and national, state, and local codes.
- Frequently inspect input power cord for damage or bare wiring – replace cord immediately if damaged – bare wiring can kill.
- Turn off all equipment when not in use.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Keep all panels and covers securely in place.



GRINDING DUST can be hazardous.

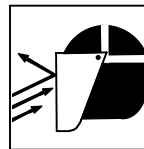
Grinding produces dust. Breathing this dust can be hazardous to your health.

- Do not breathe the dust.
- Use local exhaust (forced ventilation) to remove dust or wear an approved respirator.
- Grinding dust from thoriated electrodes contains low-level radioactive material. Consider using tungsten containing ceria, lanthana, or yttria instead of thoria.
- Properly dispose of grinder dust in an environmentally safe way.
- Read and understand the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals and consumables.



GRINDING can cause FIRE OR EXPLOSION.

- Do not grind where flying sparks can strike flammable material.
- Protect yourself and others from flying sparks and hot metal.
- Be alert that sparks and hot materials from grinding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.



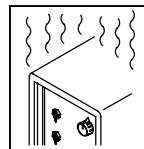
FLYING SPARKS can injure.

- Wear a face shield to protect eyes and face.
- Shape tungsten electrode only on grinder with proper guards in a safe location wearing proper face, hand, and body protection.
- Sparks can cause fires — keep flammables away.



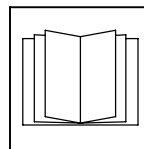
HOT PARTS can burn.

- Do not touch hot parts bare handed.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.



OVERUSE can cause OVERHEATING

- Allow cooling period; follow rated duty cycle.
- Keep air holes free of dust; clean if necessary.



READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform maintenance and service according to the Owner's Manuals, industry standards, and national, state, and local codes.



MOVING PARTS can injure.

- Keep away from moving parts.
- Keep all doors, panels, covers, and guards closed and securely in place.

- Have only qualified persons remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.

1-3. California Proposition 65 Warnings

⚠ Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

⚠ This product contains chemicals, including lead, known to the state of California to cause cancer, birth defects, or other reproductive harm. *Wash hands after use.*

⚠ This product contains or produces a chemical known to the State of California to cause cancer or birth defects (or other reproductive harm). (California Health & Safety Code Section 25249.5 et seq.)

1-4. Principal Safety Standards

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

Safe Practices for the Preparation of Containers and Piping for Welding and Cutting, American Welding Society Standard AWS F4.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

National Electrical Code, NFPA Standard 70, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org and www.sparky.org).

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association, 4221 Walney Road, 5th Floor, Chantilly, VA 20151 (phone: 703-788-2700, website: www.cganet.com).

Safety in Welding, Cutting, and Allied Processes, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (phone: 800-463-6727, website: www.csa-international.org).

Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, NFPA Standard 51B, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org).

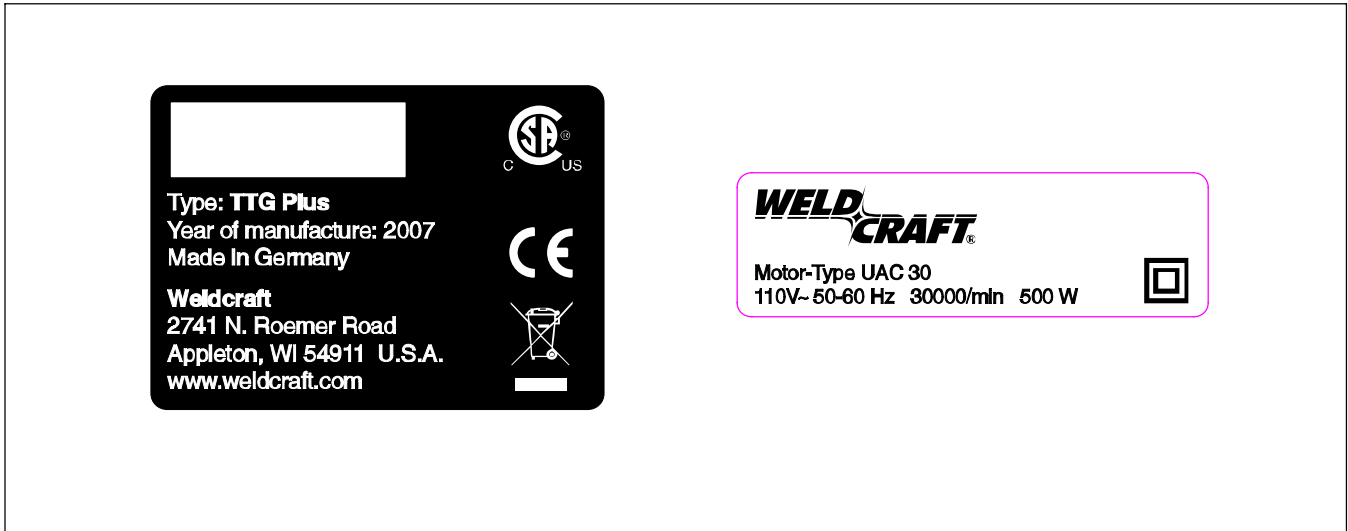
OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 1-866-512-1800) (there are 10 OSHA Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

About Implanted Medical Devices:


Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.





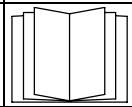


SECTION 2 – DEFINITIONS

2-1. Manufacturer's Rating Label For CE Products



2-2. Symbols And Definitions

 Some symbols are found only on CE products.

	Output		Alternating Current	A	Amperes	V	Volts
	Single Phase		Line Connection	Hz	Hertz		Read Instructions
	Double Insulated		Recycle				

SECTION 3 – SPECIFICATIONS

3-1. Description

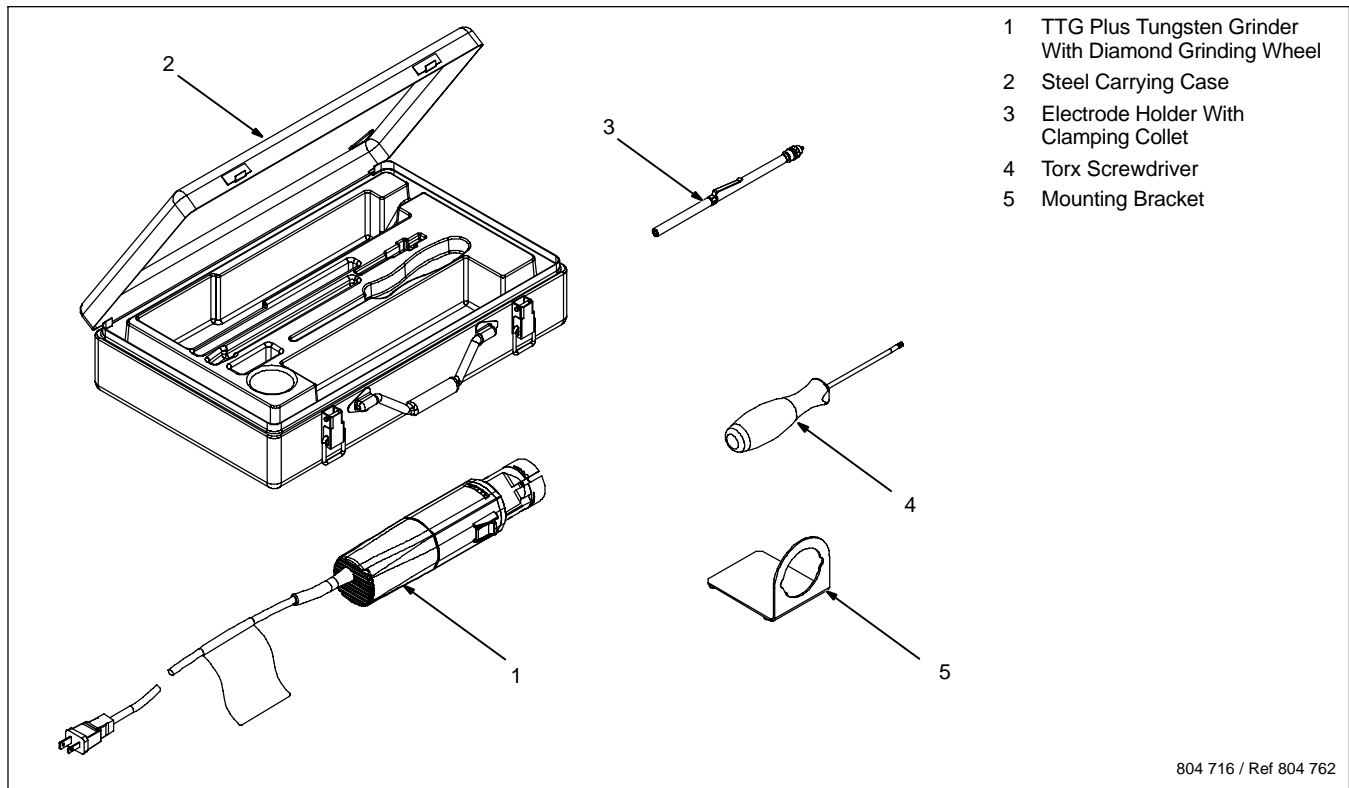
The TTG Plus cuts, grinds, and faces tungsten electrodes used in the TIG (GTAW) welding process. Additional features and benefits of this unit are:

- Electrodes are sharpened to conform to recognized standards.
- The replaceable grinding wheel is diamond-coated on both sides.
- The grinding wheel has an offset edge for easy cutting – an industry exclusive!
- The head assembly allows for different electrode angles and diameters.
- The unit can be hand operated, or bench-mounted using the supplied mounting bracket.

⚠ Grinding the tungsten electrode produces dust and flying sparks which can cause injury and start fires. Use local exhaust (forced ventilation) at the grinder or wear an approved respirator.

Read MSDS for safety information. Consider using tungsten containing ceria, lanthana, or yttria instead of thoria. Grinding dust from thoriated electrodes contains low-level radioactive material. Properly dispose of grinder dust in an environmentally safe way. Wear proper face, hand, and body protection. Keep flammables away.

3-2. Included With Your Unit





3-3. Specifications

Dimensions	Weight	Input Power	Power-On Time	Cord Length	Rotary Speed
2.6 x 13.8 in. (65 x 250 mm)	3 lb (1.4 kg) (w/Grinding Wheel)	110 V AC 50/60 Hz (500 watt Rating)	100%	9.8 ft (3 m)	30,000 RPM (U/min)

Noise Rating	Vibration Level	Electrode Material	Electrode Angles	Electrode Diameters
83 dBa (per EN23741)	2.5 m/s ² (per EN28662, Part 1)	Tungsten electrodes alloyed with zirconium, lanthanum, yttrium, and cerium ☞ Consult country-specific regulations for electrodes containing Thorium.	15° 18° 22.5° 30°	0.04 in. (1 mm) 1/16 in. (1.6 mm) 3/32 in. (2.4 mm) 1/8 in. (3.2 mm) 5/32 in. (4 mm)

SECTION 4 – INSTALLATION

4-1. Connecting Input Power






- 1 Rating Label
- 2 Power Cord
- 3 110 Volt AC Plug
- 4 AC Receptacle

Connect plug to matching AC receptacle. See rating label for electrical specifications.

804 717

4-2. Connecting Grinder To Exhaust (Vacuum) Hose

⚠ Grinding the tungsten electrode produces dust and flying sparks which can cause injury and start fires. Use local exhaust (forced ventilation) at the grinder or wear an approved respirator.

Read MSDS for safety information. Consider using tungsten containing ceria, lanthana, or yttria instead of thoria. Grinding dust from thoriated electrodes contains low-level radioactive material. Properly dispose of grinder dust in an environmentally safe way. Wear proper face, hand, and body protection. Keep flammables away.

- 1 Grinder
- 2 Exhaust (Vacuum) System

The grinding head is designed to accept a 1-1/4 in. (32 mm) exhaust (vacuum) hose.

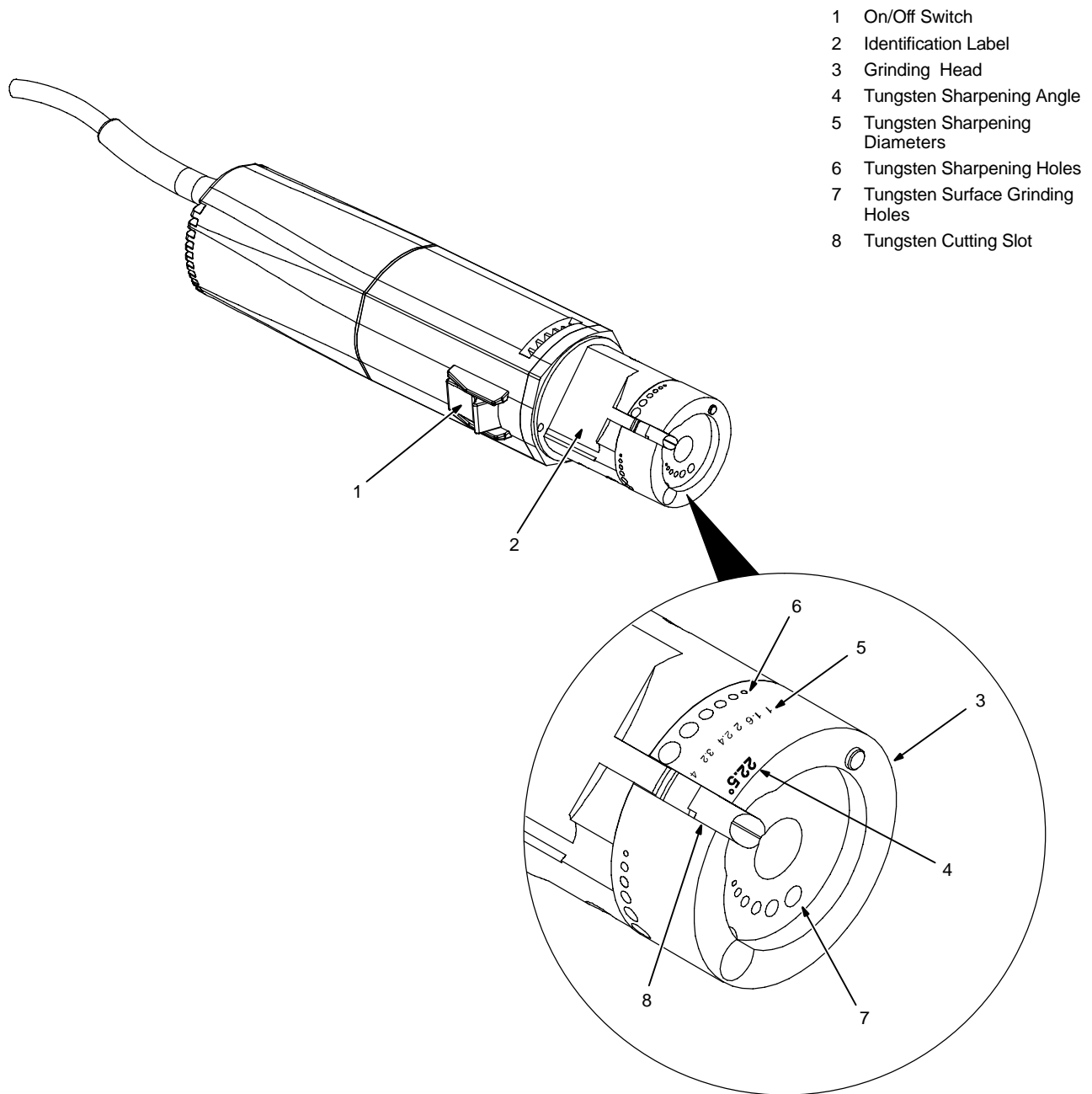
Connect the grinder to the exhaust (vacuum) hose as shown.

The optional protective cover/adaptor can also be used to connect the exhaust (vacuum) hose to the grinder.

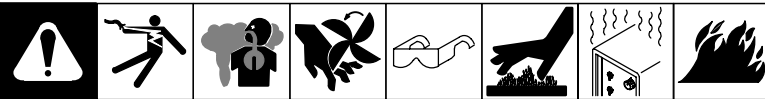
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SECTION 5 – OPERATION

5-1. Grinder Components



5-2. Grinding And Cutting Electrodes

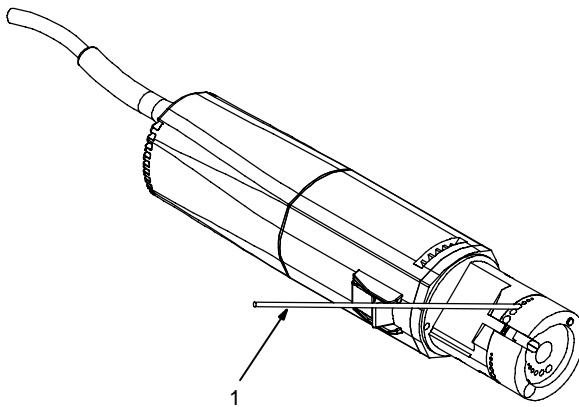


⚠ Grinding the tungsten electrode produces dust and flying sparks which can cause injury and start fires. Use local exhaust (forced ventilation) at the grinder or wear an approved respirator.

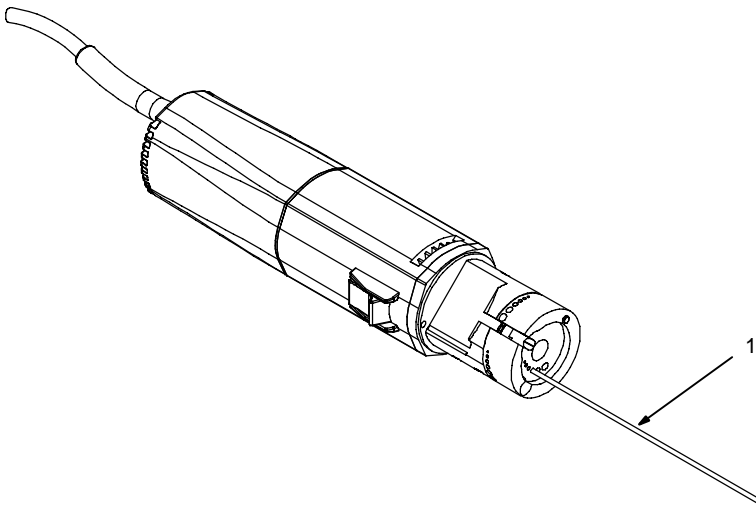
Read MSDS for safety information. Consider using tungsten containing ceria, lanthana, or yttria instead of thoria. Grinding dust from thoriated electrodes contains low-level radioactive material. Properly dispose of grinder dust in an environmentally safe way. Wear proper face, hand, and body protection. Keep flammables away.

- ☞ Do not exert excessive pressure on the grinding wheel or the life of the wheel will be shortened.
- ☞ Use a rough grinding wheel to sharpen large electrodes.
- ☞ Wait until grinding wheel stops before restarting grinder.

Sharpening Electrode



Face Grinding Electrode



1 Tungsten Electrode

To Sharpen Electrode:

Determine diameter of electrode and desired sharpening angle.

Turn on grinder. Insert electrode in corresponding hole in grinder.

Slowly turn the electrode until tip is sharpened evenly. If the electrode is not turned the tip will be flat ground to the selected angle.

To Face Grind Electrode:

Determine diameter of electrode.

Turn on grinder. Insert electrode in corresponding hole at front of grinding head. Grind the electrode tip until square.

To Cut Electrode To Length: (For Orbital Or Manual Welding):

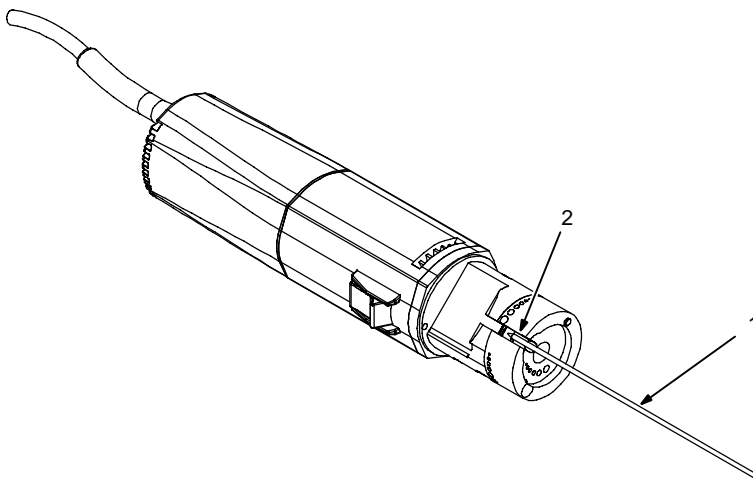
2 Cutting Slot

Turn on grinder. Insert electrode in cutting slot and turn electrode slowly until cut.

☞ An optional cutting device is available for larger electrodes. See Section 7.

Turn grinder off.

Cutting Electrode To Length



5-3. Replacing Grinding Wheels



⚠ Turn off grinder and disconnect power cord.

- 1 Head Screw
- 2 Head
- 3 Head Nut
- 4 1/8 in. (3 mm) rod
- 5 Grinding Wheel
- 6 Grinding Wheel Screw

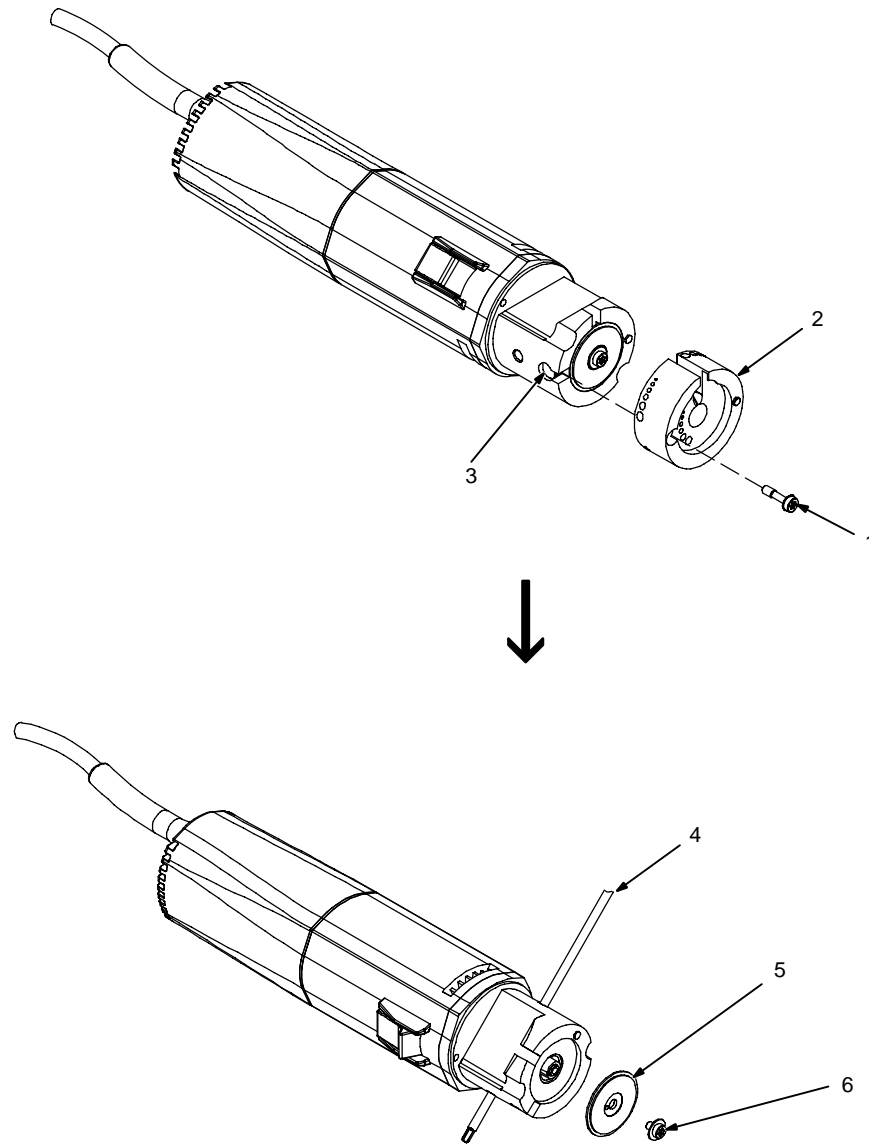
Use Torx screwdriver to remove head screw. Remove head. Do not remove head nut.

Slide rod through cross hole and motor shaft to prevent rotation of the grinding wheel.

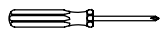
Remove grinding wheel screw. Remove grinding wheel. Reverse or replace grinding wheel.

ℹ To ensure correct installation, align grinding wheel pilot hole with locator pin on shaft.

Reinstall grinding wheel screw and washer, head, and head screw. Remove rod.



Tools Needed:



Torx



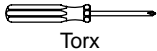
1/8 in.(3 mm) Diameter Rod

804 720

5-4. Installing Optional Double-Decker Kit

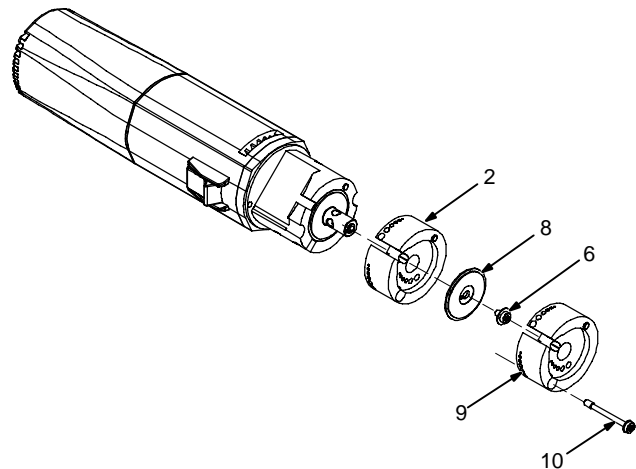
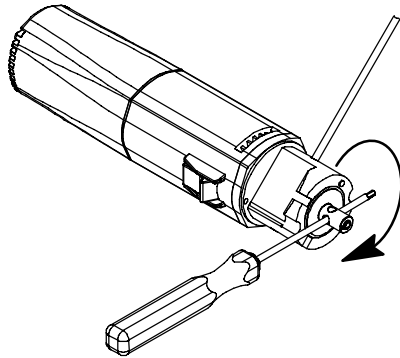
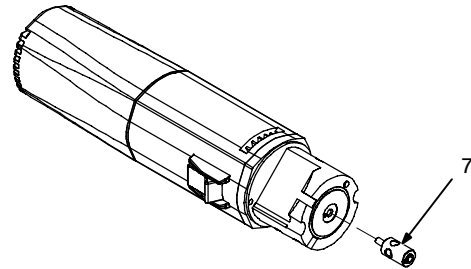
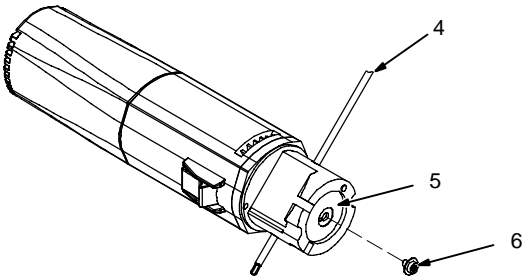
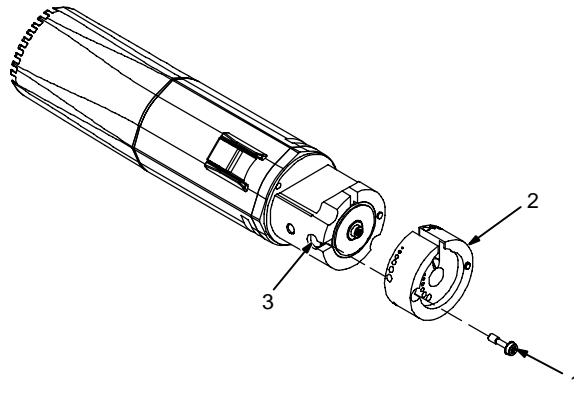


Tools Needed:



Torx

1/8 in. (3 mm) Diameter Rod



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⚠ Turn off grinder and disconnect power cord.

📦 Items 7 – 10 are included in the kit.

- 1 Original Head Screw (M4 x 15)
- 2 Original Grinding Head
- 3 Head Nut
- 4 1/8 in. (3 mm) Rod
- 5 Standard Grinding Wheel
- 6 Grinding Wheel Screw

- 7 Shaft Extension
- 8 Rough Grinding Wheel
- 9 Additional Grinding Head
- 10 Additional Head Screw (M4 x 34)

Use Torx screwdriver to remove original head screw. Remove original head. Do not remove head nut.

Slide rod through cross hole and motor shaft to prevent rotation of the grinding wheel.

Remove grinding wheel screw. Do not remove standard grinding wheel.

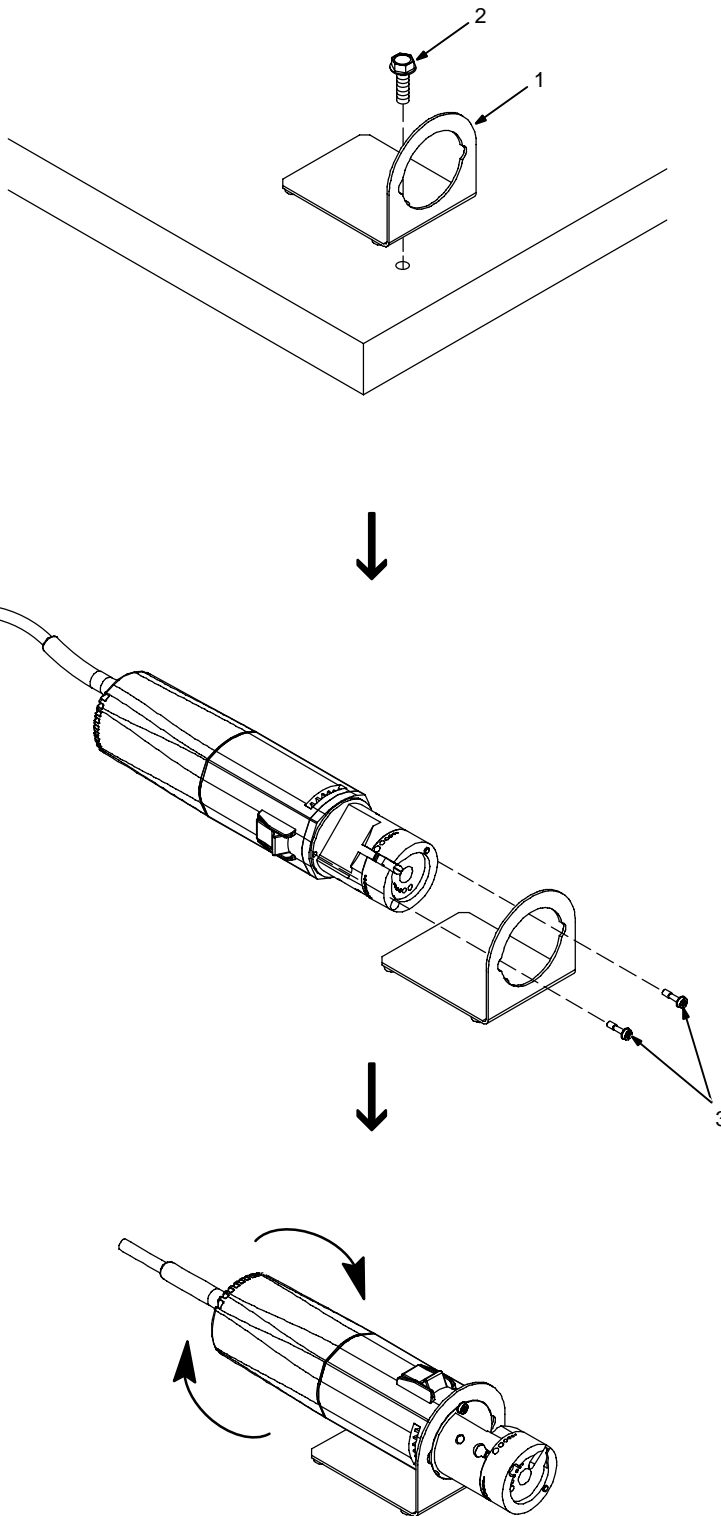
Screw shaft extension in shaft and tighten with Torx screwdriver.

Reinstall original grinding head.

Install rough grinding wheel and secure with grinding wheel screw.

Install new grinding head and head screw. Remove rod.

5-5. Installing Grinder Mounting Bracket



⚠ Turn off grinder and disconnect power cord.

ℹ Bracket and grinder can be mounted horizontally or vertically.

- 1 Bracket
- 2 1/4-20 x 1-1/2 Mounting Screw (Not Supplied)
- 3 Grinder Mounting Screws (w/Collar)

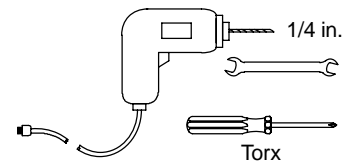
Use bracket as a template to mark hole location on mounting surface. Drill hole where marked.

Loosen grinder mounting screws.

Align mounting screws with grooves in bracket opening. Insert grinder in bracket and rotate until switch is easily accessible.

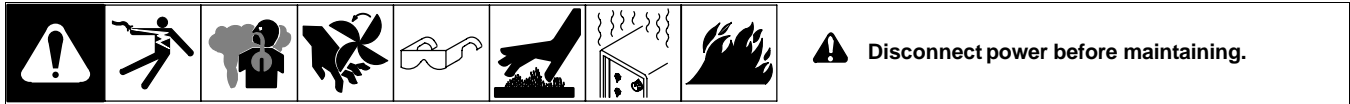
Tighten grinder mounting screws.

Tools Needed:



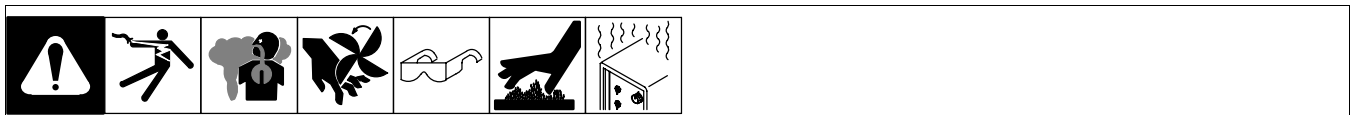
SECTION 6 – MAINTENANCE & TROUBLESHOOTING

6-1. Routine Maintenance




	✓ = Check	● = Clean			Reference
Every 8 Hours					Section 5-1
	✓ Grinder Head Is Secure	✓ Power Cord For Damage	● Grinder Head Holes	● Inside Of Housing	

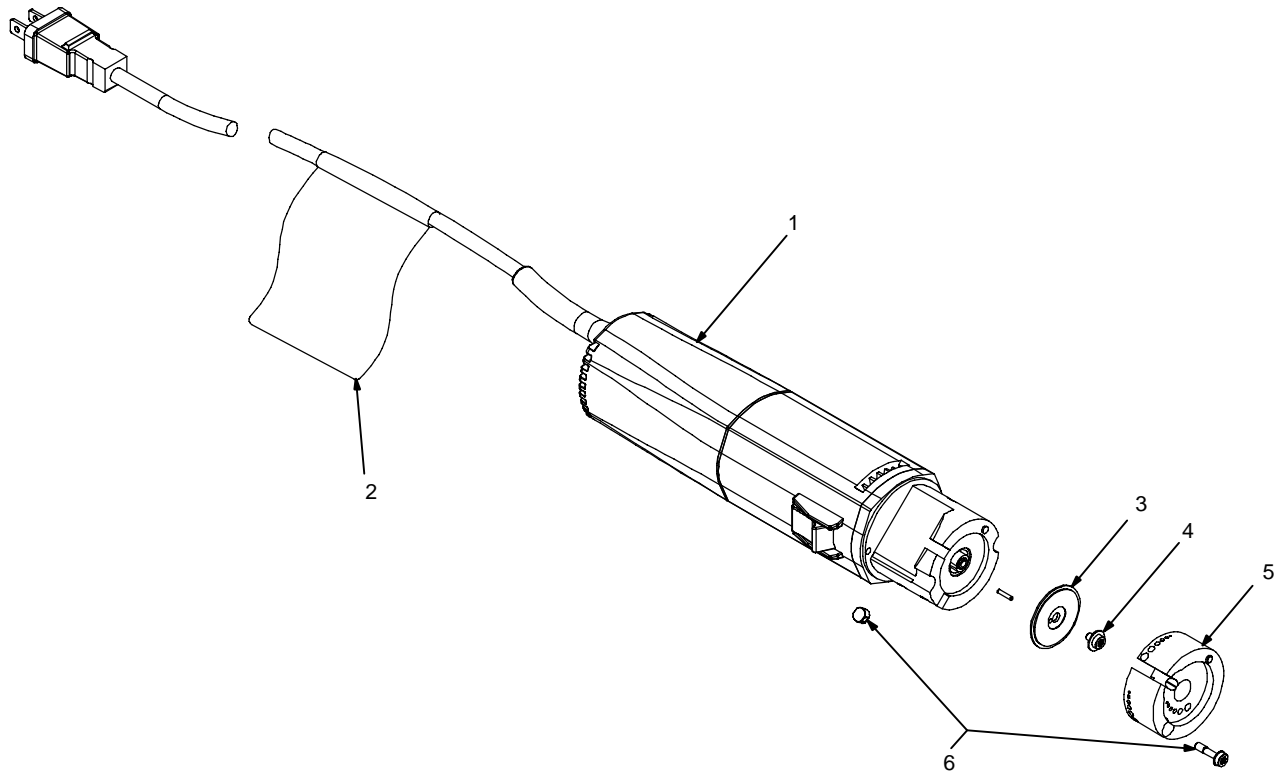
6-2. Troubleshooting



Trouble	Remedy
Motor does not run.	Have Factory Authorized Service Agent check power cable, and replace if necessary.
	Have Factory Authorized Service Agent check motor, and replace if necessary.
Grinder head is loose.	Tighten head screw.
Grinding wheel does not turn.	Tighten grinding wheel screw.
	Have Factory Authorized Service Agent check motor, and replace if necessary.
Grinding wheel wobbles.	Tighten grinding wheel screw.
	Replace grinding wheel.

SECTION 7 – PARTS LIST

 Hardware is common and not available unless listed.

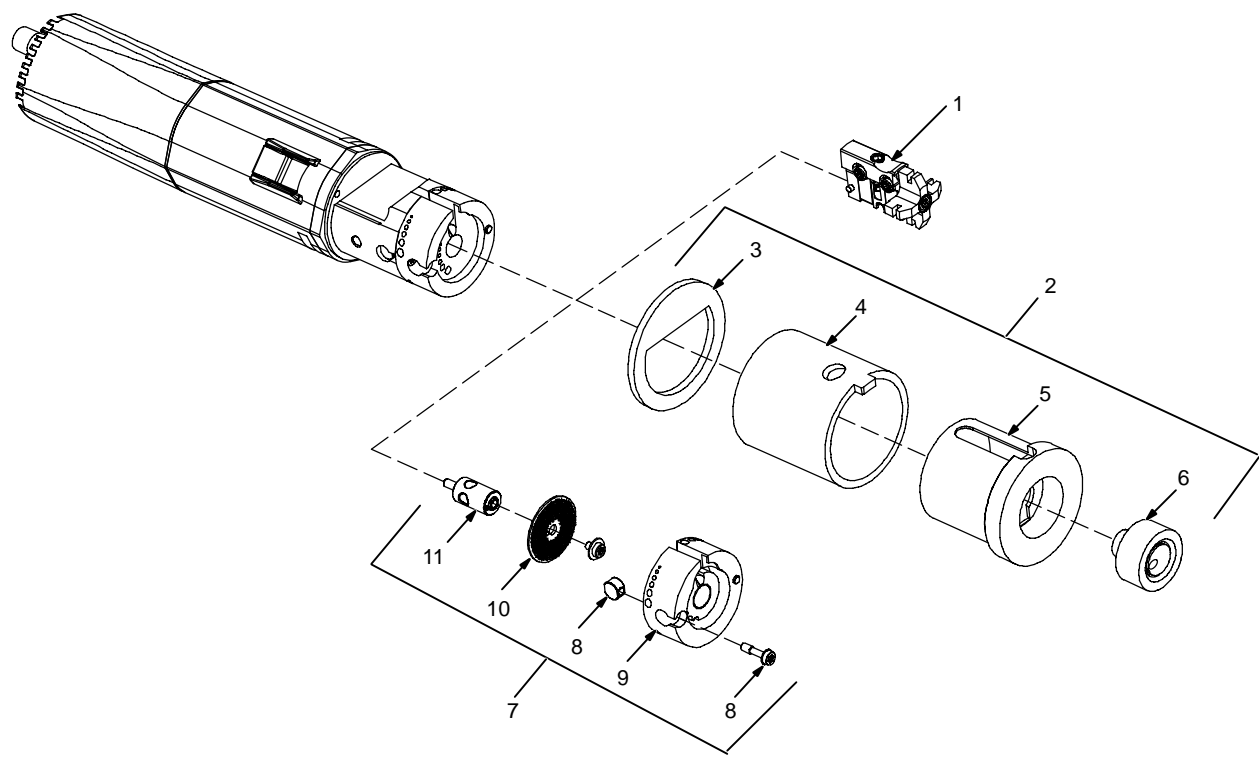


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Figure 7-1. Complete Assembly

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
Figure 7-1. Complete Assembly				
...	1	WC232 143	.. Motor, Electric 120 V, 50/60 Hz (Includes Flange)	1
...	2		.. Label, Warning	1
...		WC232 144	.. Brush, Carbon	2
...	3	WC232 145	.. Wheel, Grinding (Standard)	1
...	4	WC232 146	.. Screw, Grinding Wheel M4 x 6	1
...	5	WC232 147	.. Head, Grinding 15°, 18°, 225° and 30°	1
...	6	WC232 148	.. Screw, Head w/Collar M4 x 15 (Includes Head Nut)	2
...		WC232 159	.. Label, Motor Flange	1
...		WC232 160	.. Label, Rating	1
...		WC232 161	.. Label, Product	1
...		WC232 162	.. Label, Case	1

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.



804 996-A

Figure 7-2. Accessories

Item No.	Dia. Mkgs.	Part No.	Description	Quantity
Accessories				
...	1	WC232 168	Gage, cutting, Fixed Length	1
...	2	WC232 153	Protective Cover (Protects Grinder Head) (Includes)	1
...	3	WC232 166		
...	4	WC232 164		
...	5	WC232 165		
...	6	WC232 167		
...	7	WC232 154	Double-Decker Kit (Includes)	
...	8	WC232 155	Screw, Head w/Collar M4 x 34	1
...	9	WC232 147	Head, Grinding 15°, 18°, 225° and 30°	1
...	10	WC232 149	Wheel, Grinding (Rough)	1
...	11	WC232 156	Extension, Shaft	1
.....		WC232 157	Case, Steel Carrying	1
.....		WC232 158	Screwdriver, Torx	1
...	10	WC232 174	Wheel, Grinding Medium	1
...	10	WC232 149	Wheel, Grinding Rough	1
.....		WC232 173	Electrode Holder (With Clamping Collets)	1
.....		WC232 152	Wall/Table/Vice Mounting Plate (Includes Two Head Screws)	1
.....		WC232 175	Grinding Head 15°, 30°, 45° and 60°	

To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.



Owner's Record

Please complete and retain with your personal records.

Model Name

Purchase Date

(Date which equipment was delivered to original customer.)

Distributor

Address

City

State

Zip



For Service

Contact a **DISTRIBUTOR** or **SERVICE AGENCY** near you.

Always provide Model Number.

Contact your Distributor for:

Welding Supplies and Consumables

Options and Accessories

Personal Safety Equipment

Service and Repair

Replacement Parts

Welding Process Handbooks

Weldcraft

An Illinois Tool Works Company
2741 N. Roemer Rd
Appleton, WI 54911 USA

1-800-752-7620 Toll Free

1-920-882-6800 Phone

1-920-882-6844 FAX

www.Weldcraft.com

To locate a Distributor or Service Agency call 1-800-752-7620 or 920-882-6800

Contact the Delivering Carrier to:

File a claim for loss or damage during shipment.

For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department.