

## TIG-POINT

PATENT # 3305149

## TUNGSTEN GRINDER



**INSTALLATION, OPERATIONS AND REPLACEMENT PARTS MANUAL**

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## **INTRODUCTION**

Thank you for purchasing an American Weldquip product. The American Weldquip product you have purchased has been carefully manufactured, assembled and fully tested. This manual contains information on the installation, operation, maintenance and replacement part breakdown. Please read, understand and follow all safety instructions, warnings and procedures. Keep this manual handy for referencing installation, operation, maintenance and part ordering information. While every precaution has been taken as to the accuracy in this manual, American Weldquip, Inc. assumes no responsibility for errors or omissions. American Weldquip, Inc. assumes no liability for damages resulting from the use of the information contained in this manual. American Weldquip, Inc. shall have no liability to the buyer for consequential damages or expenses by any defect whatsoever.

## **WARRANTY**

AMERICAN WELDQUIP MIG Guns and parts are warranted to be free of defects in material and/or workmanship for the period of time listed below. For any product found to be defective under normal use, AMERICAN WELDQUIP, INC. at their option, will repair, replace or issue a credit for the value of the defective product. All warranty claims must be submitted by the original purchaser. Use of non-genuine AMERICAN WELDQUIP parts and/or consumables may damage and/or severely limit the performance of the equipment which may limit or void any warranties. AMERICAN WELDQUIP, INC. will not assume responsibility for incidental damages or expenses related to any defect.

A Return Authorization Number (RA#) must be attained from the factory for any product being returned for Warranty Repair or Replacement. All returned product must be shipped freight prepaid by the sender. No-charge replacements, repaired products, or credit will be issued, once the returned product has been evaluated and warranty condition has been verified. If an immediate replacement is required before proper warranty evaluation, a purchase order number is required and the goods will be invoiced. A credit will be issued once it is determined that a warranty condition exists.

<b>MIG TORCHES and Components</b>	<b>= 120 Days</b>
<b>MIG Torch Trigger Switches (Contacts only) -Excludes Smoke Extraction</b>	<b>= Lifetime</b>
<b>Robotic Nozzle Cleaning Stations</b>	<b>= 90 Days</b>
<b>Robotic Peripherals, ArcSafe, Wire Cutter, Gun Mounts</b>	<b>= 90 Days</b>
<b>TIG POINT Tungsten Electrode Grinders</b>	<b>= 90 Days</b>

## **SAFETY**

**WARNING: THE TIG-POINT TUNGSTEN GRINDER CAN PRODUCE DUST THAT MAY BE HAZARDOUS TO YOUR HEALTH. THE TIG-POINT SHOULD ALWAYS BE USED WITH A SUPPLEMENTARY DUST REMOVAL SYSTEM. EYE PROTECTION, RESPERATOR AND WORK GLOVES SHOULD ALWAYS BE WORN DURING OPERATION.**

Use of mineral type grinding wheels (i.e.: Borazon) on the TIG-POINT system without supplementary use of a dust removal system will shorten the service life of the equipment due to excessive dust and abrasion.

Tungsten electrodes with more than 2% thorium alloy are slightly radioactive. It is highly suggested to use a respirator and dust collection system.

## **DESCRIPTION**

The TIG-Point system offers precision longitudinal grinding of tungsten electrodes for use in TIG and Plasma welding applications. Setup and grinding operations are quick, safe, and reliable. The TIG-Point can be configured for grinding, polishing and cutting providing longer tungsten life, consistent arc parameters and improved performance over other grinding methods.

## **FEATURES**

- Fast, safe and consistently reliable longitudinal tungsten point grinding.
- Tig-Point grinds, polishes and cuts Tungsten.
- Increased TIG and Plasma electrode Life.
- Universal guide for all standard electrode diameters and lengths.
- Portable, easy to handle.
- Adjustable grinding angle from 15° to 120°.
- Sharpens electrodes from .020"(.508mm) to 1/4"(6.35mm)
- Can grind electrodes as short as 5/8"(15.875mm).

## **Why Longitudinal Grinding?**

In the manufacture of tungsten electrodes the molecular structure of the grain runs in a longitudinal direction. Lateral grinding has a detrimental effect on the smooth surface of the electrode.



The rough surface variations caused by lateral grinding causes the arc to wander and the tungsten to overheat causing undesirable weld arc characteristics and reduced tungsten life.

By utilizing longitudinal grinding with the tungsten grain direction the arc is narrow and bell shaped and very stable. The tungsten electrode has a lower thermal load and therefore longer life.

## **SPECIFICATIONS**

<b>TIG-POINT –</b>	120 Volt, 2 Amp, 1/10 HP
<b>Tungsten Diameters -</b>	.020(.508mm) to ¼" (6.35mm)
<b>Range of Angle –</b>	15° - 120°
<b>Minimum Electrode Length -</b>	1-1/2"(38.1mm), Down to 5/8"(15.74mm) with optional support.
<b>Vacuum System –</b>	120 Volt, 10Amp, 4.5 HP, 6 Gallon

## **INSTALLATION AND SETUP**

### Assembly without the Base Cabinet

- 1) Securely mount the TIG-POINT on the edge of a table or stand.
- 2) Using the CLAMP LEVER (1), attach the SWING ARM (4) to the front of the INDEXING MECHANISM (7).

**IMPORTANT:** Take care to position the electrode prism guide so that it does not come in contact with the grinding wheel.

### Assembly with the Base Cabinet

NOTE: System is fully assembled when shipped from the factory if ordered with base cabinet and dust removal system.

- 1) Securely attach the riser mount to the base cabinet.
- 2) Remove the four rubber bumpers from the TIG-POINT grinder unit.
- 3) Using the four (4) M6 socket head screws provided, attach the TIG-POINT unit to the riser mount on the base cabinet.

### Attach the Dust Removal System

- 1) Slip the vacuum nozzle into the clamp system and tighten the two screws to secure in place.  
Note: leave at least 3 inches of the vacuum nozzle beyond the clamp to secure the vacuum hose.
- 2) Attach the vacuum nozzle/clamp assembly to the riser mount by inserting the clamp screw in the hole provided in the mount and tighten in position with the handle.
- 4) Attach the vacuum/dust hose to the vacuum nozzle.
- 5) Finish set up of the vacuum unit.

## **OPERATION**

**WARNING: THE TIG-POINT TUNGSTEN GRINDER CAN PRODUCE DUST THAT MAY BE HAZARDOUS TO YOUR HEALTH. THE TIG-POINT SHOULD ALWAYS BE USED WITH A SUPPLEMENTARY DUST REMOVAL SYSTEM. EYE PROTECTION, RESPERATOR AND WORK GLOVES SHOULD ALWAYS BE WORN DURING OPERATION.**

- 1) Using the CLAMP LEVER (1), adjust the gauge to the desired grinding angle.
- 2) Loosen the RUBBER COATED CAM (2) from the UNIVERSAL GRINDING SUPPORT (6) and rotate counterclockwise.
- 3) Loosen the ADJUSTABLE STOP (5) and insert the tungsten electrode from above or below in to the UNIVERSAL GRINDING SUPPORT (6).
- 4) Bring the ADJUSTABLE STOP (5) into position under the tip and set at the desired length.

IMPORTANT: DEPENDING ON THE GRINDING ANGLE, THE TUNGSTEN ELECTRODE MUST PROTRUDE AT LEAST 1.25”(30MM) FROM THE ELECTRODE GUIDE TO PREVENT THE GUIDE ELEMENT FROM ACCIDENTLY TOUCHING THE GRINDING WHEEL.

- 5) Rotate the RUBBER COATED CAM (2) clockwise back to its original position and lock in place the UNIVERSAL GRINDING SUPPORT (6). Grinding of the electrode takes place by positioning in front of the grinding wheel and then moving it back and forth in a pendulum motion with simultaneous fine adjustments of the adjustment wheel on the INDEXING MECHANISM (7).
- 6) Turn on the TIG-POINT unit.
- 7) The RUBBER COATED CAM (2) is designed that the movement automatically rotates the tungsten electrode and utilizes the entire width of the grinding wheel.
- 8) When the electrode is sharpened to the desired point stop the adjustment procedures. To achieve the optimal performance continue to manipulate the manual drive segment until no sparks are produced.
- 9) Turn off the TIG-POINT grinder.
- 10) Loosen the RUBBER COATED CAM (2) from the UNIVERSAL GRINDING SUPPORT (6) and rotate counterclockwise.
- 11) Loosen the ADJUSTABLE STOP (5) and remove the tungsten electrode from above or below in to the UNIVERSAL GRINDING SUPPORT (6).

## **MAINTENANCE**

The Manual Drive Segment contains a rubber coated cam which spins the tungsten electrode during the sharpening operation. For proper operation the rubber cam surface must be kept free of oil and dirt.

### **DRESSING OF THE GRINDING WHEEL**

In normal operation the grinding wheel retains a flat even surface due to the oscillating movement and motion of the tungsten electrode on the wheel. An optimum grind can only be obtained through the use of clean, even-surfaced grinding wheels.

However, should the grinding wheel rotate unevenly resulting in a ridge formation or should the grain surface become clogged with dirt, dressing the wheel be required. You will need a dressing fixture and a diamond dresser.

Note: Only Corundum grinding wheels can be dressed using the diamond dresser. Borazon grinding wheels can be conditioned using a whetstone(520607).

To dress the wheel, remove the complete grinding element (swing arm assembly, drive cam) and attach the diamond dresser to the grinding angle gauge using the CLAMP LEVER (1). Use a pendulum movement of the diamond dresser against the grinding wheel with a simultaneous adjustment of the INDEXING MECHANISM(7) to condition the surface.

### RUBBER CAM CLEANING

Use only a rubber eraser or mineral spirits for cleaning dirt or oil from rubberized cam surface.

Extremely rough or severely contaminated rubber surface can be smoothed out using a fine (300-400 grain) sandpaper.

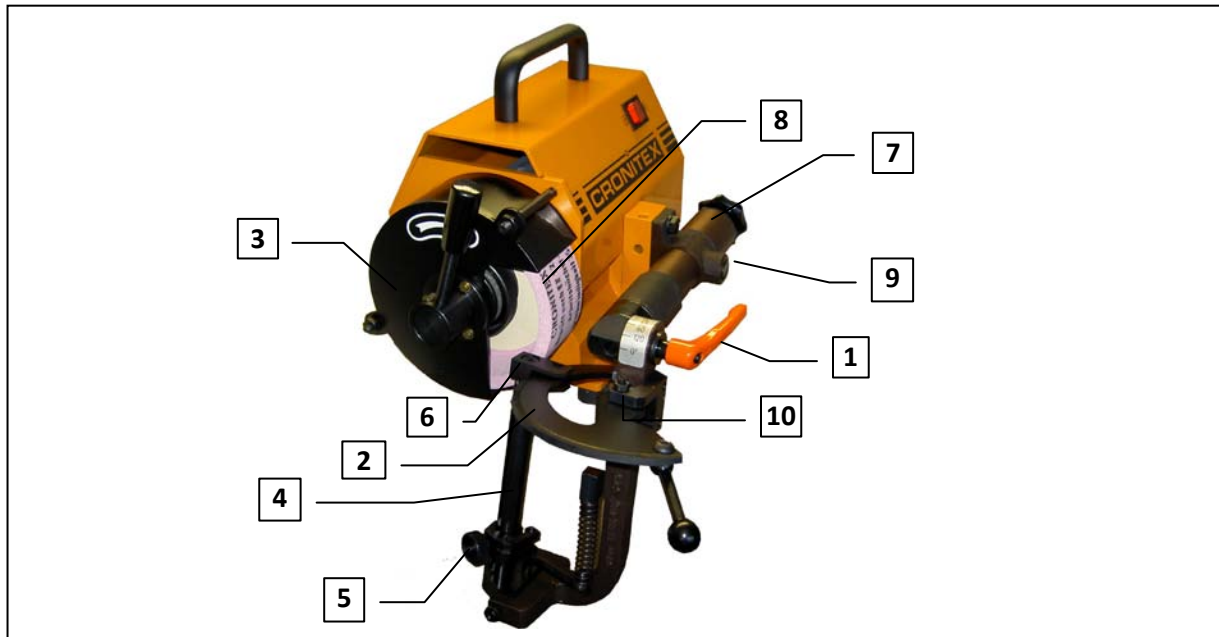
### LUBRICATION

Lubrication of bearing elements is not necessary.

### ADJUSTMENTS

- 1) Too much play in the grinder bearings can cause incorrect rotation of the tungsten electrode. If this is the case, the adjustment of the conical head bolts may need adjustment and/or locked.
- 2) Play in the adjustment spindle can be corrected by slightly adjusting and tightening the side screws.
- 3) Under normal circumstance it is normal for the rubber cam to wear out which will cause slippage of the tungsten electrode rotation during grinding. The rubberized cam can be replaced with a new one or returned to the factory for re-vulcanization.

## PARTS LIST



Item #	Part Number	Description	Item #	Part Number	Description
1	520615	Clamping Lever		520515	Hose Clamp
2	520203	Rubber Coated Cam		520516	Adj. Clamp Lever
3	520613	Flange		520608	Cleaning Rubber for Cam
	520614	Rapid Change Nut		520617	Roll Point
4	520200	Swing Arm Assy. Complete		520619A	Short Elect. Support 1/16"
5	520206	Adjustable Stop		520619B	Short Elect. Support 3/32"
6	520204	Universal Grind Support		520619C	Short Elect. Support 1/8"
7	520300	Indexing Mechanism		520619D	Short Elect. Support 5/32"
8	520602	Corundum Wheel 80 Grit		520619S	Short Elect. Support .040"
	520603	Corundum Wheel 120 Grit		520621	Roll Point – 3 pcs Set
	520604	Corundum Wheel 150 Grit		520622	Roll Point – 5 pcs Set
	520625	Combo Wheel Rough/Polish		520623	Replacement Seat - 520206
	525606	Diamond Wheel 150 Grit		520635	Support Spring
9	520201	Adjusting Arm		520950	Quick Stop Brake System
10	525914	Cam Set Screw		520315	Adj. Cam Lever
	525934	Lock Nut		520403	Diamond Dresser
NS	520000M	Single Spindle Motor		520501	Riser Mount
	520001M	Double Spindle Motor		520607	Whetstone
	520103	Motor Spindle End Piece		520612	Diamond Cutoff Wheel
	520104	Grinding Wheel Flange		520615	Swing Arm Clamp Lever
	520400	TIG-POINT Dressing Fixture		520600	Hi-Intensity Work Light
	520514	Suction Nozzle		525650	Combo Light/Mag Glass



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