CORNWELL QUALITY TOOLS

MMW811VG

Auto Darkening Welding Helmet

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Professional Quality Welding Helmet

SAFETY WARNINGS - READ BEFORE USING

WARNING
Read & Understand All Instructions Before Using

Auto-Darkening welding helmets are designed to protect the eye and face from sparks, spatter and harmful radiation under normal welding conditions. Auto-Darkening filter automatically changes from a light state to a dark state when an arc is struck, and it returns to the light state when welding stops.

The Auto-Darkening welding helmet comes assembled. But before it can be used, it must be adjusted to fit the user properly. Check battery surfaces and contacts and clean it if necessary. Verify if the battery is in good condition and installed properly. Set up for delay time, sensitivity and shade number for your application.

The helmet should be stored in dry, cool and dark area and remove the battery, when not using it for a long time.

WARNING

- This Auto-Darkening welding helmet is not suitable for laser welding.
- Never place this helmet and Auto-Darkening filter on a hot surface.
- Never open or tamper with the Auto-Darkening filter.
- This Auto-Darkening welding helmet will not protect against severe impact hazards.
- This helmet will not protect against explosive devices or corrosive liquids.
- Don´t make any modifications to either the filter or helmet, unless specified in this manual. Don´t use replacement parts other than those specified in this manual. Unauthorized modifications and replacement parts will void the warranty and expose the risk of personal injury.
- Should this helmet not darken upon striking an arc, stop welding immediately and contact your supervisor or your dealer.
- Don´t immerse the filter in water.
- Don´t use any solvents on the filter screen or helmet components.
- Use only at temperatures: -10º C ~ +55º C (14°F ~ 131°F).
- Storing temperature: -20º C ~ +70º C (- 4°F ~ 158°F). The helmet should be stored in dry cool and dark area and remove the battery, when not using it for a long time.
- Protect filter from contact with liquid and dirt.
- Clean the filter surface regularly; don´t use strong cleaning solutions. Always keep the sensors and solar cells clean using a clean lint-free tissue.
- Regularly replace the cracked / scratched / pitted front cover lens.
- Never try to open the filter cartridge.
- The materials which may come into contact with the wearer's skin can cause allergic reactions in some circumstances.

WARNING

Severe personal injury could occur if the user fails to follow the above mentioned warnings and/or fails to follow the operating instructions.

COMMON PROBLEMS AND REMEDIES

• Irregular Darkening Dimming

Headband has been set unevenly and there is an uneven distance from the eyes to the filter lens (Reset the headband to reduce the difference to the filter).

• Auto-Darkening filter does not darken or flickers

① Front cover lens is soiled or damaged (Change the cover lens).
② Sensors are soiled (Clean the sensors surface).
③ Welding current is too low (Adjust the sensitivity level to higher).
④ Check battery and verify they are in good condition and installed properly. Also, check battery surfaces and contacts and clean if necessary. Please referring to the "**POWER**" on page 2.

• Slow response

Operating temperature is too low (Do not use at temperatures below -10º C or 14º F).

• Poor vision

① Front/inside cover lens and/or the filter is soiled (Change lens).
② There is insufficient ambient light.
③ Shade number is incorrectly set (Reset the shade number).
④ Check if removing the film on the front cover lens.

• Welding helmet slips

Headband is not properly adjusted (Readjust the headband).

WARNING

The user must stop using the auto-darkening welding helmet immediately if the above-mentioned problems cannot be corrected. Contact the dealer.

INSTRUCTIONS FOR USE

WARNING! Before using the helmet for welding, ensure that you have read and understood the safety instructions.

• TEST

Press and hold "TEST" to preview shade selection before welding (See fig.1). When released then viewing window will automatically return to the light state (3 Shade). Press "TEST", if viewing window does not turn to dark state, replace batteries and try again.).

fig.1

• POWER

When the low battery LED located on the lens starts to come to red, it is a warning for the battery to be replaced (See fig.1).

• Slide the battery holder out of the auto darkening filter, (remove the used battery when you replacing battery), put new CR2450 battery inside the battery holder, and put the battery holder back into the auto darkening filter. Pls. Make sure the anode and cathode of the battery are installed correctly (See fig.2).

• SELECTING SHADE LEVEL

Select the shade level you require according to the welding process you will use by referring to the "Shade Guide Table" below for settings. The shade can be adjusted from shade 5 to 8 and 9 to 13 based upon welding process or application. Pls refer to fig.3 for shade range setting, then turn the shade control knob on the lens of the helmet to the shade number required (See fig.4).

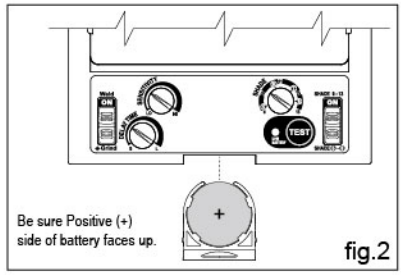


fig.2

• SELECTING THE OPERATING MODE

Use the switch button on the back of shade cartridge to select the mode appropriate for the work activity. Pls refer to fig.3 for Weld mode / Grind mode setting.

Weld Mode - Used for most welding applications. In this mode the shade function is turned on when it optically senses a welding arc. Select shade level, delay time and sensitivity as required.

Grind Mode - Used for metal grinding applications. In this mode, the shade function is turned off. The shade is fixed shade DIN 3 that allowing a clear view to grind a weld with the helmet providing face protection.

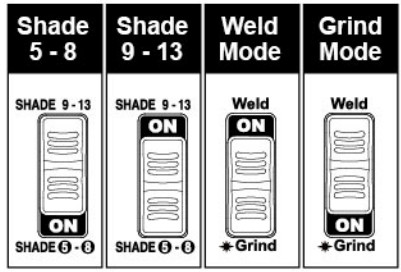


fig.3

• SELECTING DELAY TIME

When welding ceases, the viewing window automatically changes from dark back to light but with a pre-set delay to compensate for any bright afterglow on the workpiece. The delay time/response can be set to "S"(short) (0.1 sec.) or "L" (long) (1.0 sec.). As you require using the infinitely dial knob on the back of the shade cartridge (See fig.4). It is recommended to use a shorter delay with spot welding applications and a long delay with applications using higher currents. Longer delays can also be used for lower current TIG welding, and TIG / MIG / MAG pulse.

• SENSITIVITY

The sensitivity can be set to "HI" (high) or "LO"(low) by using the infinitely dial knob on the back of the shade cartridge. The "Mid-High" setting is the normal setting for everyday use. The maximum sensitivity level is appropriate for low welding current work, TIG or special applications. Where the operation of the helmet is disturbed by excess ambient light, or

fig.4

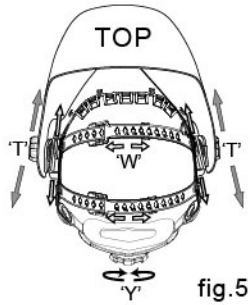


fig.5

another welding machine close by, use the “Low” setting (See fig.4). As a simple rule, for optimum performance, it is recommended to set sensitivity to the maximum at the beginning and then gradually reduce it, until the filter reacts only to the welding light flash and without annoying spurious triggering due to ambient light conditions (direct sun, intensive artificial light, neighbouring welder's arcs etc.).

• ADJUSTING THE FIT OF THE HELMET

The overall circumference of the headband can be made larger or smaller by rotating the knob on the back of the headband (See adjustment “Y” in fig.5). This can be done while wearing the helmet and allows just the right tension to be set to keep the helmet firmly on the head without it being too tight.

• If the headband is riding too high or too low on your head, adjust the strap which passes over the top of your head. To do this release the end of the band by pushing the locking pin out of the hole in the band. Slide the two portions of the band to a greater or lesser width as required and push the locking pin through the nearest hole (See adjustment “W” in fig.5).

• Test the fit of the headband by lifting up and closing down the helmet a few times while wearing it. If the headband moves while tilting, re-adjust it until it is stable.

• ADJUSTING THE DISTANCE BETWEEN THE HELMET AND THE FACE

Step 1: Undo the block nut (See “T” in fig.5) to adjust the distance between the helmet and your face in the down position.

Step 2: Re-tighten the block nut when adjustment is complete.

• ADJUSTING VIEW ANGLE POSITION

TILT: Tilt adjustment is located on right side of helmet. Loosen the right side headgear tension knob and push the top end of the adjustment lever outward until the lever’s Stop Tab clears the notches. Then rotate the lever forward or back to the desired tilt position. The Stop will automatically engage again when released locking the helmet into position (See fig.6).

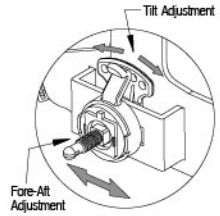


fig.6

• You are now ready to use the helmet. The shading may be adjusted during use by re-setting the potentiometer control.

MAINTENANCE

REPLACING FRONT COVER LENS : Remove lens casette by moving locks toward center (fig.7) and lift up the lens cassette to remove/replace the front cover lens.

REPLACING INSIDE COVER LENS : Replace the inside clear lens if it is damaged. Place your fingernail in recess below cartridge view window and flex lens upwards until it releases from edges of cartridge view window.

CHANGE THE SHADE CARTRIDGE : Remove ADF holder assembly from helmet shell. See fig.8 for removal. Flex top end of the ADF holder to allow for ADF cartridge to be removed from frame. Install new ADF cartridge into frame per fig.7 below. Make sure that the

ADF cartridge is inserted in ADF holder correctly as shown. Install ADF holder assembly into helmet shell.

CLEANING. Clean helmet by wiping with a soft cloth. Use mild disinfection solution to disinfect the protector. Clean cartridge surfaces regularly. Do not use strong cleaning solutions. Clean sensors and solar cells with methylated spirit and a clean cloth and wipe dry with a lint-free cloth.

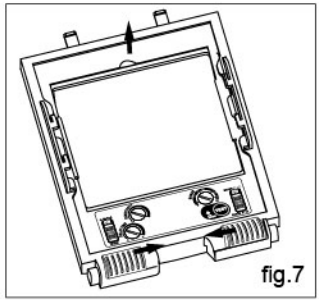


fig.7

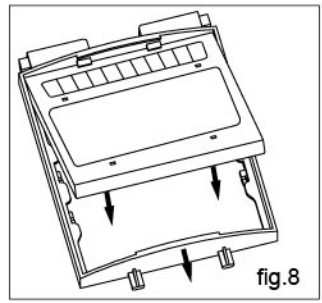


fig.8

TECHNICAL SPECIFICATIONS

Optical Class	1 / 1 / 1 / 2
Viewing Area	97 x 81 mm (3.82" x 3.19")
Cartridge Size	133 x 114 x 9 mm (5.25" x 4.50" x 0.35")
Arc Sensor	4
Light State	DIN 3
Dark State	DIN 5 ~ 8 / 9 ~ 13
Shade Control	Internal, Variable Shade
Power On/Off	Fully Automatic
Sensitivity Control	Low — High, by infinitely dial knob
UV/IR Protection	Up to Shade DIN16 at all times
Power Supply	Solar cell. Battery replaceable 1 × CR2450 lithium battery
Switching Time	1/25,000 s. from Light to Dark
Oxyfuel Gas Welding	Yes
Oxygen Cutting	Yes
Delay (Dark to Light)	0.1 ~ 1.0 s by dial control knob
Low Amperage TIG Rated	≥ 2 amps (DC); ≥ 2 amps (AC)
Grinding	Yes
Operating Temp.	-10°C ~ +55°C (14°F ~ 131°F)
Storing Temp.	-20°C ~ +70°C (- 4°F ~ 158°F)
Helmet Material	High Impact Resistance Nylon
Total Weight	1.4 Lbs
Application Range	Stick Welding (SMAW); TIG DC&AC; TIG Pulse DC; TIG Pulse AC; MIG/MAG/CO2; MIG/MAG Pulse; Plasma Arc Cutting (PAC); Plasma Arc Welding (PAW); Air Carbon Arc Cutting (CAC-A); Oxyfuel Gas Welding (OFW); Oxygen Cutting (OC); Grinding
Approved	ANSI Z87.1, CSA Z94.3

SHADE GUIDE TABLE

GUIDE FOR SHADE NUMBERS

				(1)
Shielded metal arc welding	Less than 3 (2.5) 3-5 (2.5–4) 5-8 (4–6.4) More than 8 (6.4)	Less than 60 60-160 160-250 250-550	7 8 10 11	— 10 12 14
Gas metal arc welding and flux cored arc welding		Less than 60 60-160 160-250 250-500	7 10 10 10	— 11 12 14
Gas tungsten arc welding		Less than 50 50-150 150-500	8 8 10	10 12 14
Air carbon Arc cutting	(Light) (Heavy)	Less than 500 500-1000	10 11	12 14
Plasma arc welding		Less than 20 20-100 100-400 400-800	6 8 10 11	6 to 8 10 12 14
Plasma arc cutting	(Light)[2] (Medium)[2] (Heavy)[2]	Less than 300 300-400 400-800	8 9 10	8 12 14
Torch brazing		–	–	3 to 4
Torch soldering		–	–	2
Carbon arc welding		–	–	14

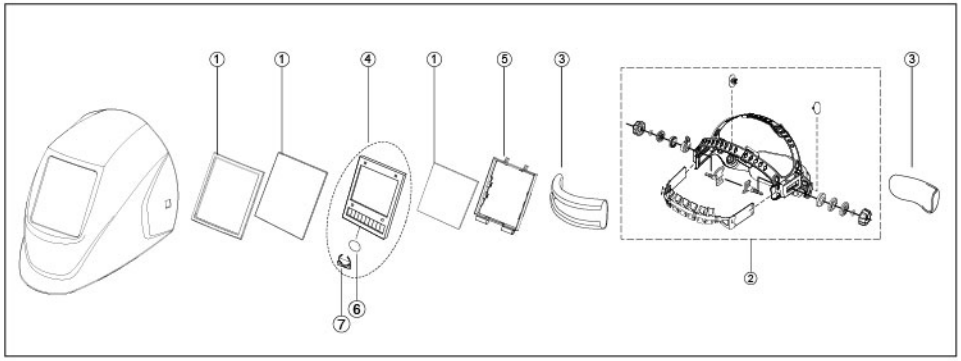
	PLATE THICKNESS in.	mm		
Gas welding Light Medium Heavy	 Under 1/8 1/8 to 1/2 Over 1/2	 Under 3.2 3.2 to 12.7 Over 12.7		 4 or 5 5 or 6 6 or 8
Oxygen cutting Light Medium Heavy	 Under 1 1 to 6 Over 6	 Under 25 25 to 150 Over 150		 3 or 4 4 or 5 5 or 6

(1) As a rule of thumb, start with a shade that is too dark, then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line the visible light of the (spectrum) operation

(2) These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

Data from ANSI Z49.1-2005

PARTS LIST & ASSEMBLY



Reference Number	Description	Part No.
1	Cover Lens Kit (4 outer/2 inner)+Gasket	MMWLK81
2	Headgear	MMWHG16
3	Sweatband Bundle	MMWSB16
4	Replacement Lens	MMWRL81
5	Lens Retainer	MMWLH66
6	Battery (1pc)	MMWCR2450R
7	Battery Holder	MMWBHL-2450-2

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