

**UNIVERSAL**

**ECLIPSE 2.0**



***Auto Darkening  
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. This auto darkening filter will automatically turn on when pick it up. The 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. Before welding, please make sure the ADF was set to WELDING / CUTTING mode instead of GRIND mode.**

**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 any other than those specified in this manual. Unauthorized modifications and replacement parts will void the warranty and expose the operator to 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: -10°C ~ +55°C (14°F ~ 131°F).
- Storing temperature: -20°C ~ +70 °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 contacting 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.
- 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

Headgear has been set unevenly and there is an uneven distance from the eyes to the filter lens (Reset the headgear 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 (Reset 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 refer to the "BATTERY INSTALLATION" on page 2.

### • Slow response

Operating temperature is too low (Do not use at temperatures below -10 °C or 14 °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

Headgear is not properly adjusted (Readjust the headgear).



#### 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

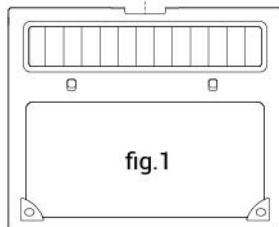
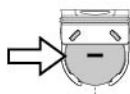
**WARNING!** Before using the helmet for welding, ensure that you have read and understood the safety instructions.

### • BATTERY INSTALLATION

This ADF cartridge is powered by solar cell and 1 CR2450 lithium battery. When indicator located on the lens starts to come to red (See fig.2), it is a warning for the battery to be replaced.

Slide battery holder out of auto darkening filter, (remove the used battery when replacing battery), put new CR2450 battery inside battery holder, and put battery holder back into auto darkening filter. Please make sure the anode and cathode of the battery are installed correctly (See fig.1).

Be sure Negative (-) side of battery faces up.



### • TEST

Before working, press and hold "TEST" to preview shade selection (See fig.2). When released viewing window will automatically return to the light state (Shade 2). Press "TEST", if viewing window does not turn to dark state, replace battery and try again.



fig.2

• **SELECTING MODE**

**Grind Mode - Shade 2 (See fig.3)**

Press "MODE" button to select **Grind**, auto darkening filter will switch to grind mode.

Under this situation, the indicator would turn green, filter will remain shade 2.

Before restarting other work, press "MODE" button to select **Weld/Cut Mode**.

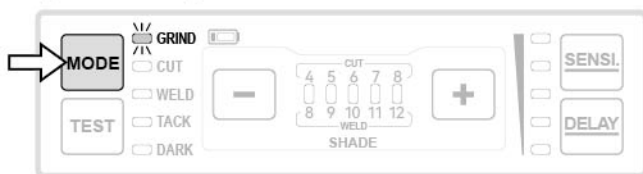


fig.3

**Cut Mode - Shade 4 ~ 8 (See fig.4)**

Press "MODE" button to select **Cut**, then adjust shade number. Press "+" and "-" button to select the desired shade displayed on LED scale. Under this situation, the indicator would turn green.

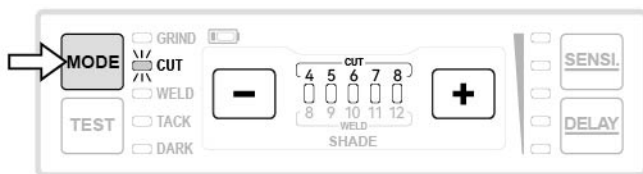


fig.4

**Weld Mode - Shade 8 ~ 12 (See fig.5)**

Press "MODE" button to select **Weld**, then adjust shade number. Press "+" and "-" button to select the desired shade displayed on LED scale. Under this situation, the indicator would turn green. Select shade number for your welding process by referring to "Shade Guide Table" on last page.

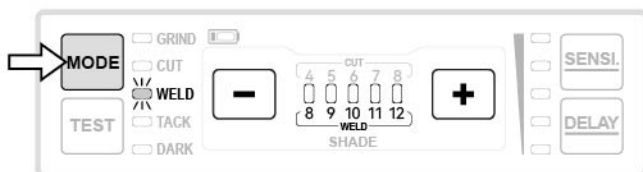


fig.5

## Tack Mode

This mode is suitable for spot welding. The normal welding mode quickly switches between light state and dark state, which may cause eyes fatigue. This mode improves welding comfort by transitioning between light state and dark state in shade 5.

In spot welding mode, when interval between two arcs is less than 2 seconds, the brightness will return to shade 5 instead of shade 2 during the interval;

If interval between two arcs is longer than 2 seconds, when the arc stops, the brightness will return to shade 5 for 2 seconds and then return to light state shade 2 (See fig.6).

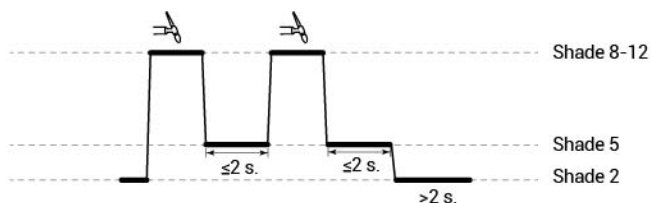


fig.6

Press "MODE" button to select **TACK** mode, indicator lights in front of **Weld** and **Tack** will turn green (See fig.7). When you need to switch to other operations, press "MODE" button to adjust. In this mode, delay is default as "1" level (0.05 sec.).

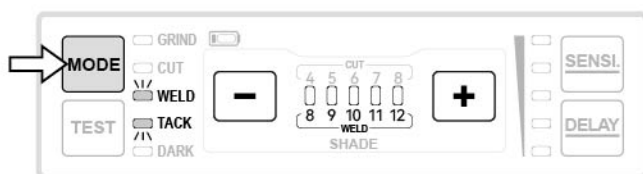


fig.7

## Dark Mode

In this mode, ADF will keep in dark state, which is suitable for situation when the arc light is partially obscured and is not easily captured by ADF sensors, such as argon arc backing weld, narrow gap welding, etc.

Press "MODE" button to select **Dark** mode, and indicator lights in front of **Weld** and **Dark** will turn green (See fig.8). Press "+" and "-" button to choose the desired shade displayed on the LED scale. The optional shade range is 8-12. When you need to switch to other operations, press the mode button to adjust. In Dark mode, delay and sensitivity can not be adjusted.

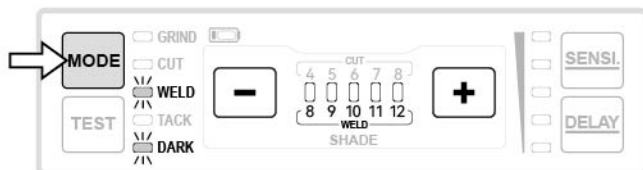


fig.8

#### • SENSITIVITY CONTROL

Press "MODE" button to select **Cut/Weld/Tack** Mode. Adjust sensitivity by pressing "SENSI." button to select **Sensitivity** Control Mode. Press "SENSI." button to select the desired sensitivity level displayed on LED scale (See fig.9). Under this situation, the indicator would turn **orange**.

There are 5 increments of sensitivity control. The middle level setting is the normal setting for everyday use. The high level is appropriate for low welding current work, TIG, or special applications. Higher sensitivity setting is necessary if lens flashing on and off. When the operation of the helmet is disturbed by excess ambient light, or another welding machine close by, use the lower setting. 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.).

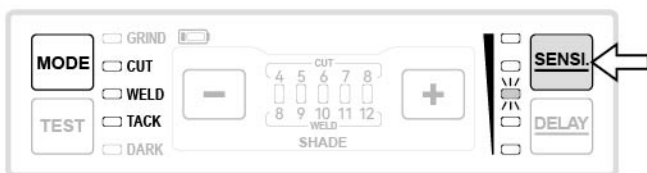


fig.9

#### • DELAY CONTROL

When welding ceases, viewing window automatically changes from dark back to light but with a pre-set delay to compensate for any bright afterglow on the workplace.

There are 5 increments of delay control. The delay time response can be set from short level (0.05 sec.) to long level (1.0 sec.). Press "DELAY" button to select Delay Control Mode. Press "DELAY" button to select the desired delay level displayed on LED scale (See fig.10). Under this situation, the indicator would turn **green**. In **Tack** mode, delay is default as "1" level (0.05 sec.).

It is recommended to use a shorter delay with spot welding applications and a longer delay with applications using higher currents. Longer delay can also be used for lower current TIG welding, and TIG / MIG / MAG pulse.

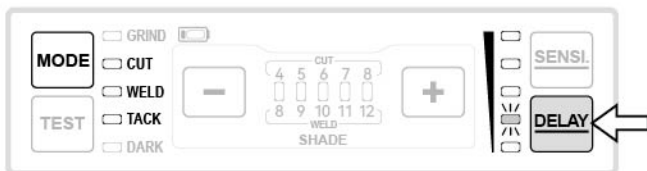


fig.10

#### • 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.11). This can be done whilst 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.11).

• 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.11) to adjust the distance between the helmet and your face in the down position.

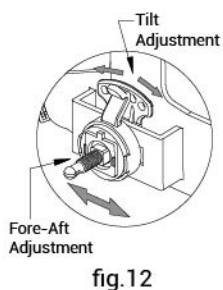
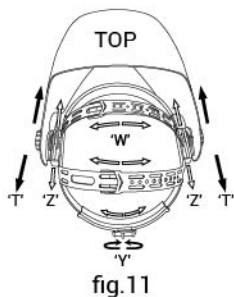
Step 2: Loosen the block nut on either side of the helmet and slide it nearer or further from your face. (See adjustment "Z" in fig.11). It is important that your eyes are each the same distance from the lens. Otherwise the darkening effect may appear uneven.

Step 3: 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 righthandgear 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.12).

• 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

Replace the front cover lens if it is damaged. Remove ADF holder assembly per fig.13. Remove front cover lens from helmet assembly. Carefully remove gasket from cover lens. Install new cover lens into gasket and assemble to helmet shell. Make sure to assemble cover lens and gasket into helmet shell the same way as it was removed.

### • REPLACING INSIDE COVER LENS

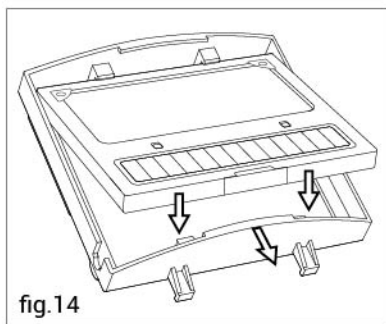
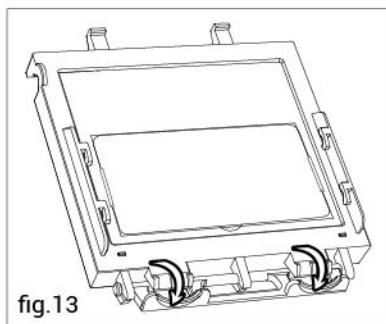
Replace the inside cover lens if it is damaged. Place your fingernail in recess below cartridge view window and flex lens upwards until it releases from edges of cartridge view window.

### • CHANGE THE AUTO DARKENING FILTER

Remove ADF holder assembly from helmet shell. See fig.13 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.14 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. Clean the auto darkening filter 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.

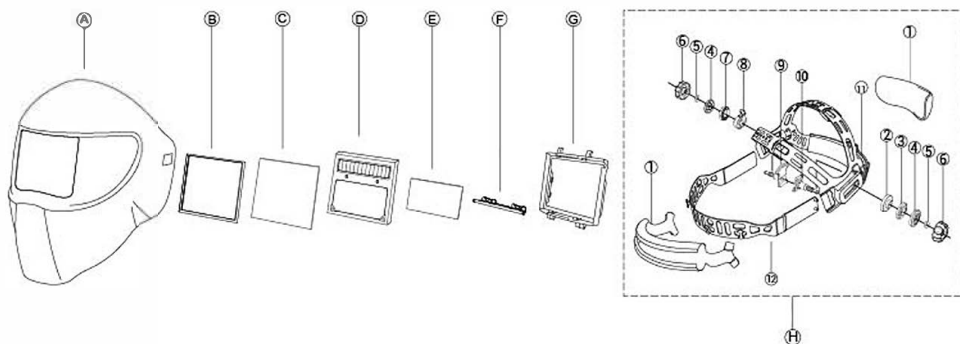




## TECHNICAL SPECIFICATIONS

Optical Class:	1 / 1 / 1 / 2
Viewing Area:	96 X 46.5mm (3.78" X 1.83")
Cartridge Size:	110 X 90 X 9mm (4.33" X 3.54" X 0.35")
Arc Sensor:	4
Light State:	DIN 2
Grind State:	DIN 2
Cutting Shade:	Shade No. from 4 to 8
Welding Shade:	Shade No. from 8 to 12
Shade Control:	Internal, LED and Button Control
Power On / Off:	Automatic On / Off
Sensitivity Control:	Low ~ High, LED and Button Control
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
Delay (Dark to Light):	0.05 ~ 1.0 s, LED and Button Control
Low Amperage TIG Rated:	≥ 5 amps (DC); ≥ 5 amps (AC)
Grind:	Yes
Battery Capacity Test:	Yes
Low Battery Indicator:	Yes
Arc Spot Mode:	Internal, LED and Button Control
Holo-dark Mode:	Internal, LED and Button Control
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:	450 g
Application Range:	Stick Welding (SMAW); TIG DC&AC; TIG Pulse DC; TIG Pulse AC; MIG/MAG/CO <sub>2</sub> ; 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:	CE, UKCA, ANSI Z87.1, Z94.3, AS/NZS 1338.1

## PARTS LIST & ASSEMBLY



### Part List

ITEM	PART NUMBER	DESCRIPTION
A	EP343-0000-005-ONE	Eclipse Helmet shell (black)
	EP344-0000-329-ONE	Eclipse Helmet shell (midnight camo)
B	AC565-0000-041-ONE	Eclipse Helmet Rubber Gasket
C	EP345-0000-005-ONE	Eclipse Helmet Front cover lens (116x94.5) 5pc
D	EP346-0000-005-ONE	Eclipse 3.0 Auto-Darkening Filter
E	EP348-0000-041-ONE	Eclipse 3.0 Inside cover lens
F	AC606-0000-005-ONE	Eclipse ADF Lock mechanism
G	AC607-0000-005-ONE	Eclipse ADF Cradle
H	AC608-0000-005-ONE	Eclipse Headgear Assembly (Including Sweatband)
H-1	AC609-0000-005-ONE	Eclipse Sweatband 2 pc

## SHADE GUIDE TABLE

### GUIDE FOR SHADE NUMBERS

OPERATION	ELECTRODE SIZE 1/32 in. (mm)	ARC CURRENT(A)	MINIMUM PROTECTIVW SHADE	SUGGRSTED <sup>(1)</sup> SHADE NO. (COMFORT)
Shielded metal arc welding	Less than 3 (2.5)	Less than 60	7	—
	3-5 (2.5-4)	60-160	8	10
	5-8 (4-6.4)	160-250	10	12
	More than 8 (6.4)	250-550	11	14
Gas metal arc welding and flux cored arc welding		Less than 60	7	—
		60-160	10	11
		160-250	10	12
		250-500	10	14
Gas tungsten arc welding		Less than 50	8	10
		50-150	8	12
		150-500	10	14
Air carbon Arc cutting	(Light)	Less than 500	10	12
	(Heavy)	500-1000	11	14
Plasma arc welding		Less than 20	6	6 to 8
		20-100	8	10
		100-400	10	12
		400-800	11	14
Plasma arc cutting	(Light) <sup>(2)</sup>	Less than 300	8	8
	(Medium) <sup>(2)</sup>	300-400	9	12
	(Heavy) <sup>(2)</sup>	400-800	10	14
Torch brazing		—	—	3 to 4
Torch soldering		—	—	2
Carbon arc welding		—	—	14
PLATE THICKNESS				
	in.	mm		
Gas welding	Under 1/8	Under 3.2		4 or 5
	1/8 to 1/2	3.2 to 12.7		5 or 6
	Over 1/2	Over 12.7		6 or 8
Oxygen cutting	Under 1	Under 25		3 or 4
	1 to 6	25 to 150		4 or 5
	Over 6	Over 150		5 or 6

<sup>(1)</sup> 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.

<sup>(2)</sup> 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.

## WARRANTY

Universal's only obligation shall be repair, replace or refund the purchase price of such parts or products material and fabrication defects free of charge within the warranty period.

This warranty does not cover to cause by improper handling abuse or application other than recommended in the user instruction.

If you come across any problem during warranty period, contact your distributor, send the defective parts together with the completed defect problem if necessary.

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For future reference, please complete the owner's record below:

**Serial Number:**

**Purchase Date:**



DIN EN175:1997  
DIN EN379:2009-07  
DIN EN166:2001  
(EU) 2016/425  
UKCA-B-210967  
Approved body No: 0194

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