AUTO-DARKENING HELMET

OPERATION MANUAL

Model: RAZOR 85X

Please read this manual carefully before
using the auto-darkening welding helmet

INTRODUCTION

The auto-darkening helmet with improved High Definition Filter Optics, delivers a new generation of face and eye protection. Advanced integrated technology, such as LCD, optoelectronics detection, solar power, and microelectronics are coordinated to produce one of the safest, fastest and most reliable auto-darkening helmets available.
The auto-darkening helmet can not only efficiently protect operator's eyes and face from sparks, spatter, and harmful radiation under normal welding conditions, but also make both hands free and strike arc accurately resulting in increased efficiency and improved quality welds. It may be widely used for various welding, cutting, spraying and arc gouging, etc.

WARNINGS ⚠

- This auto-darkening helmet is not suitable for "overhead" welding, laser welding or oxyacetylene welding applications.
- This helmet will not protect against explosive devices or corrosive liquids. Machine guards or eye splash protection must be used when these hazards are presented.
- Impact resistant, primary eye protection, spectacles or goggles that meet current ANSI specifications must be worn at all times when using this welding helmet.
- Avoid work positions that could expose unprotected areas of the body to spark, spatter, direct and/or reflected radiation. Use adequate protection if exposure cannot be avoided.
- Do not make any modifications to either the ADF cartridge or helmet, other than those specified in this manual.
- Do not use any replacement parts other than those specified in this manual. Unauthorized modifications and replacement parts will void the warranty and expose the user to the risk of personal injury.
- Do not immerse this helmet in water because this model is not waterproof.
- Do not use any solvents on any ADF or helmet components.
- The recommended operating temperature range for this ADF cartridge is -10°C~65°C (14°F~149°F). Do not use this device beyond these temperature limits.

Failure to follow these warnings and/or failure to follow all of the operating instructions could result in severe personal injury.

SPECIFICATIONS

Specification of 85 X ADF	
1.CE Classification	1/1/1/1
2.True Color	Yes
3. LCD Viewing area	100 x 60 mm (3.94" x 2.36")
4. Light State Shade	DIN 4
5. Dark Variable Shades	DIN 5-9 / 9-13
6. Switching time (light to dark)	0.08ms
7. Delay time (dark to light)	Adjustable (0.1-0.9s)
8. Sensitivity	Adjustable (low-high)

9. Arc Sensors	3
10.Grinding Function	Yes
11. Power Supply	Solar Cell and Li-ion battery CR2032*2
12. Operating Temperature	-10°C~65°C (14°F~149°F)
13. Inner Protection Lens	105.8 x 65.8 x 1 mm
14. Outer Protection Lens	118 x 97 x 1 mm
15. Standards	CE EN379, ANSI Z87.1, CSA Z94.3, AS/NZS
16. Warranty	2 years ON Shell, 1 year on ADF

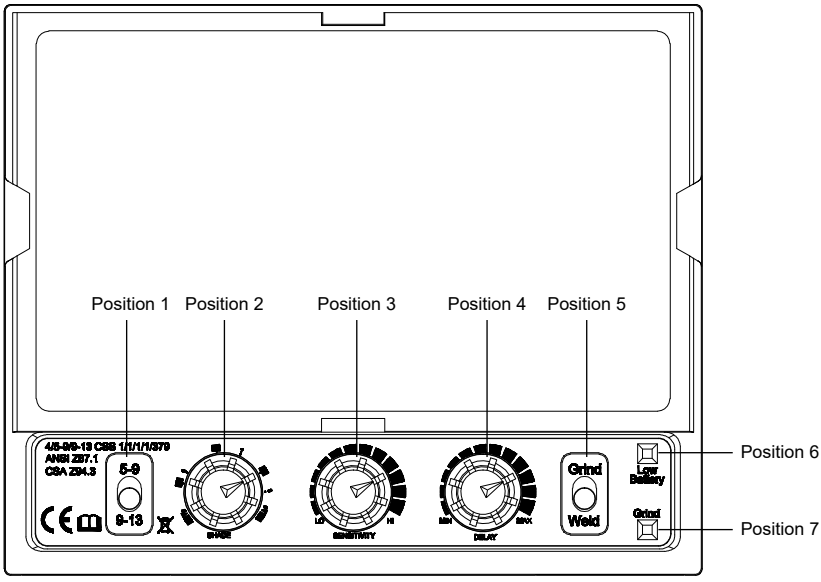
OPERATION INSTRUCTION

BEFORE USE

-Check for light tightness and check the inside & outside protection lens are clean and that no dirt is covering the sensors on the front of the **auto-darkening-filter (ADF)** cartridge.

-Make sure the protection films on both inside & outside protection lens are removed.

-Inspect all operating parts for signs of wear or damage. Any scratched, cracked, or pitted parts should be replaced immediately.



VARIABLE SHADE CONTROL

- Shade range of ADF is 5-9/9-13.Can be switched by a moving the knob on ADF (Position 1) and can be adjusted by rotate the shade button(Position 2) on ADF.
- If the **Shade** is in the range of **5~9**, clockwise rotate the button on ADF, Shade number will be increased; Or Anticlockwise rotate the button on the ADF, Shade number will be reduced.
- If the **Shade** is in the range of 9**~13**, clockwise rotate the button on the ADF, Shade

number will be increased; Or Anticlockwise rotate the button on the ADF, Shade number will be reduced.

Note:

-Choose an optimum **Shade** number for the required welding process or application (see Table 1).

-If this ADF does not darken when striking arc, stop welding immediately and contact your supplier.

SENSITIVITY CONTROL

The responsiveness to different light levels in various welding processes can be adjusted between low and high by rotate the SENSIVITY button on ADF(Position 3)

- Clockwise rotate the button on the ADF, Sensitivity will be increased; Or Anticlockwise rotate the button on the ADF, Sensitivity will be reduced.
  - Turn to **low**: The photo sensitivity changes to be lower.
    - Suitable for high amperage welding and welding in bright light conditions (lamp light or sun light).
  - Turn to **high**: The photo sensitivity changes to be higher.
    - Suitable for low amperage welding and using in poor light conditions.
    - Suitable for using with steady arc process such as TIG welding.
    - Under normally use, a higher sensitivity setting is recommended.

DELAY CONTROL

The length of time delay for the ADF returns to light state after welding can be adjusted in the range 0.1~0.9s. The time delay is for protection of welder's eyes from strong residual rays after welding. Delay time can be adjusted by rotate the DELAY button on ADF(Position 4)

- Clockwise rotate the button on the ADF, Delay time will be increased; Or anticlockwise rotate the button on the ADF, Delay time will be reduced.
  - Turn to **min (0.1s)**: The time the ADF lighten after welding to be shorter. The shortest time is about 0.1s depending upon welding point temperature and shade set. This setting is ideal for track welding or production welding with short welds.
  - Turn to **max (0.9s)**: The time the ADF lighten after welding to be longer. The longest time is about 0.9s depending upon welding point temperature and shade set. This setting is ideal for welding at high amperage where there is an after-glow from the weld.

Grinding and Welding SELECTION

- Select grinding mode and Welding mode by switching the button on the ADF, (Position 5) The red light on ADF will flash at Grinding mode (Position 7).

Note: Do not weld in the grinding mode, the ADF will not darken.

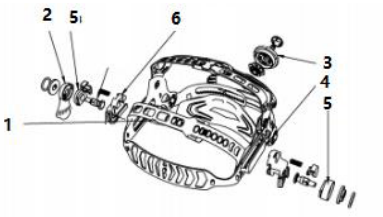
BATTERY INDICATOR

- The light on ADF become red (Position 6), Change the battery of ADF. Otherwise, switching time will become slower and shade accuracy will be compromised.

HEADGEAR ADJUSTMENTS

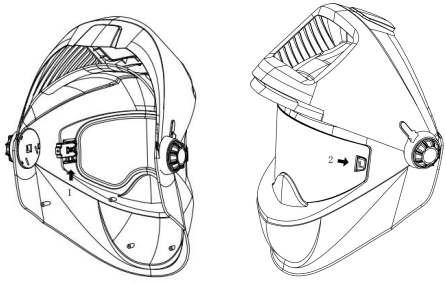
Adjust the headgear to suit as head sizes vary and therefore the work positions and the observing angles are different. Operator may adjust the headband in 5 parameters:

1- Select eye level by Headband adjusting buttons (1).
2- Select view angle by Segmental positioning plate (2).
3- Adjust head size perimeter by pushing and turning the Headband tightness adjusting knob (3).
4- Select eyes distance from ADF by adjusting Headgear screws to 1 of the 5 slots on the Headgear slider (4). Make sure both sides are equally positioned for proper vision.
5- Select the height of the headgear by adjusting the Block washers(5) up or down on the Block washer adjustment(6).



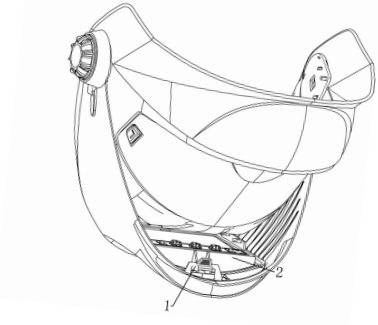
REPLACE INNER VISOR

- The Large Inner Visor is a protection lens and **must** be replaced if broken, damaged or covered with welding spatter to the extent that vision is impaired.
- Flip up the outer cover.
- Push the plugs inside the helmet up, see position 1. The Inner Visor will be released from the helmet; pull the Inner Visor out. See position 2.
- Insert the visor, it is necessary to locate the button into the corresponding hole in the helmet, then push the plugs inside the helmet down and lock the visor.
- The user must always make sure the Visor is fitted properly and is locked well and there are no visible gaps.



REPLACE OUTER PROTECT LENS

- The outer protect lens is a protection lens and **must** be replaced if broken, damaged or covered with welding spatter to the extent that vision is impaired.
- Flip up the outer cover.
- Unlock the ADF by pull the lock structure inside the flip up cover, (position.1). Take the ADF out (Position.2), replace a new outer protect lens. Insert the ADF back to flip up cover, lock the ADF by push the lock structure.
- The user must always make sure the outer protect lens is fitted properly and is locked well



TRUE COLOR

The auto-darkening helmet is a True Color welding helmet. With advanced True Color technology, the users can weld with improved clarity due to new complex coating technology, grinding with precision while in grinding mode and finally see the job performance in the light state in the full spectrum of colors. There is no need to remove the helmet to see clearly! Results are enhanced re the weld quality, increased efficiency and improved safety because the users can see more.

MAINTENANCE

The auto-darkening helmet needs little maintenance. Use a clean, soft piece of cloth moistened with soft soap / pure alcohol / commercial disinfectant to wipe the inside and the outside of the helmet. Dry storage.

Note: Do not immerse the helmet or ADF in water directly.

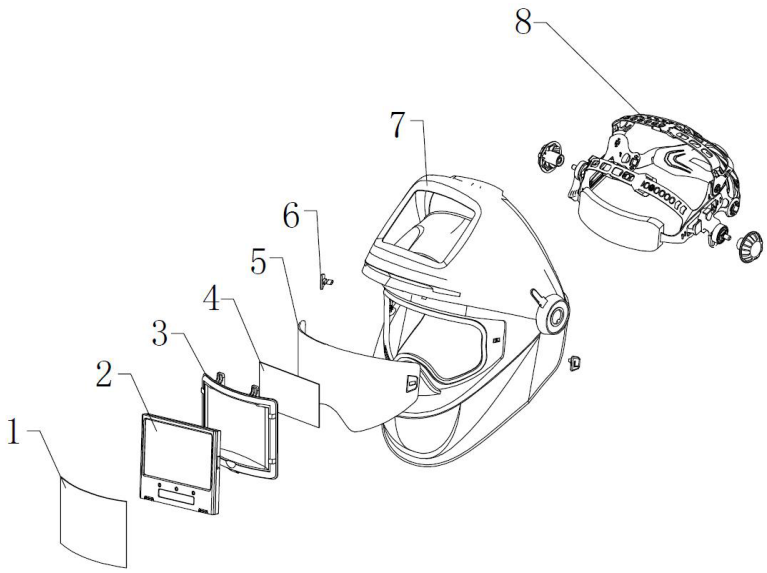
TROUBLE SHOOTING

Trouble	Remedy
The ADF does not darken when welding.	-Stop welding or cutting immediately. -Make sure the sensors are facing the arc and no obstructions. -Check the mode that is on **WELDING** not **GRINDING.** -Review sensitivity recommendations and adjust sensitivity if possible. -Replace the battery if necessary.
The ADF stays dark after welding or there is no arc present.	-Adjust the sensitivity to the lower level (level 1). -If the welding place is extremely bright, it is recommended to reduce the surrounding light level.
The ADF switching during the welding.	-Increase the sensitivity if possible. -Make sure the sensors are facing the arc and no obstructions. -Increase Delay 0.1 − 0.3 second may also reduce switching.
Inconsistent shade number on the corner of ADF.	-It is a natural feature and will not be dangerous for the eyes. -In order to get a maximum comfort, try to keep an view angle at around 90°.

WARRANTY

The auto-darkening helmet shells are warranted for 2 years from the date of purchase and the ADF's for 12 Months. The duration of use depends on various factors such as use, cleaning storage and maintenance. Frequently inspections and replacement are recommended if it is damaged. Please note that the helmets are NOT covered for warranty due to physical mis-use or abuse and include failure to change inner and outer lens,

PARTS LIST(Figure 1)



Number	Code No.	Description
1	PL-5004	Outer protection lens
2	AF-3042	ADF
3	SP-1012	ADF cradle
4	PL-5001	Inner protection lens
5	SG-2001	Large Inner Visor
6	SP-1013	Fasteners
7	SP-1114	Helmet shell
8	HG-2003	Headgear

Table 1 – Recommended use of the different scale numbers for arc welding

	Current A																				
Process	**1,5**	**6**	**10**	**15**	**30**	**40**	**60**	**70**	**100**	**125**	**150**	**175**	**200**	**225**	**250**	**300**	**350**	**400**	**450**	**500**	**600**
Covered electrodes						8		9	10		11		12			13			14		
MAG							8		9	10		11			12			13			14
TIG				8		9			10		11			12		13					
MIG with heavy metals									9		10		11			12		13		14	
MIG with light alloys											10		11		12		13		14		
Air-arc gouging												10		11		12		13		14	15
Plasma jet cutting										9		10		11		12		13			
Micro- plasma arc welding		4		5		6		7		8		9		10		11		12			
	1,5	**6**	**10**	**15**	**30**	**40**	**60**	**70**	**100**	**125**	**150**	**175**	**200**	**225**	**250**	**300**	**350**	**400**	**450**	**500**	**600**

NOTE The term "heavy metals" applies to steels, alloy steels, copper and its alloys, etc.