



USER INSTRUCTION MANUAL

Single Shade and Variable Shade Auto-Darkening Filters

Single Shade



2000F

Variable Shade



3000V3



4000VI3



5000VI



Products Which Improve
Quality, Productivity,
Safety & Performance

85 Independence Drive, Taunton, MA 02780

Tel: 508-884-9600 Toll Free: (800) 223-4685 Fax (508) 884-9666 M-ADFilters-2002

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Operation and Comfort

As soon as you strike an arc, your new **ARCONE®** welding filter will automatically darken. Our advanced optical detection system monitors your welding process to ensure that your filter remains in the dark state in a wide range of arc welding applications. Protection from harmful ultra-violet / infrared radiation is always present whether in the light or dark shade.

Your new filter energizes automatically as soon as the arc is struck. All models are solar powered so there are no on / off switches. There are no alkaline batteries to change and no corrosion caused by leaky batteries. All **ARCONE®** products have a lithium battery back up that supports the solar panels to ensure delay free operation even in totally dark conditions.

Your new filter is capable of working in virtually all arc-welding applications. The arc detection system is designed to detect an electronic welding arc and filter out other sources of light. **ARCONE®** welding filters are not designed for oxy-acetylene, laser, or very low amperage welding applications. It is virtually impossible to be specific as to how low an amperage the sensors can detect. Every welding application is different and there are other factors that may effect operation such as distance from the arc, welding current frequency, electrode type, shielding gasses, and lighting conditions.

We also know the importance of comfort. Our welding helmets are not only engineered for safety and functionality but also for comfort. We have fully adjustable headgear that is very comfortable and virtually indestructible.

Preparations for Use

Before you begin welding always inspect your helmet and filter to ensure they are not damaged. Check to see if the filter protection plates (cover plates) are clean, clear, and securely attached to the helmet and covering the auto-darkening filter both front and rear.

WARNING, never begin welding without first checking to see if the correct front and rear protection plates are in place. (See page 5 for part numbers) Failure to protect your welding filter may cause damage and subsequently become a safety hazard should the UV/IR protection be compromised from spatter or cracks from impact. This type of damage is due to poor maintenance and abuse. Damage caused by abuse such as excessive temperatures, cracks from impact, and pitting from spatter caused by poor maintenance will void warranty.

SPATTER, CRACKS, AND MELTED CASES ARE NOT COVERED BY WARRANTY

Preparations for Use (continued)

The ratchet headgear is fully adjustable at both the brow and crown. While placing the helmet on your head, push in and turn the adjusting knob, on the ratchet headgear, to ensure a comfortable fit. The ratchet is designed to lock in place when released. The height of the helmet can be adjusted by increasing or decreasing the length of the crown strap. When making this adjustment remember to line your eyes up as centrally to the viewing area as possible. Proper alignment enables the best view possible.

To test your filter, prior to welding, direct the front of the filter to a bright source of light then, using your fingers, rapidly cover and uncover the sensors. The filter will darken momentarily. Another means of testing is to utilize a torch striker or TV or VCR remote. These devices will also momentarily darken the filter. Once you are sure that the filter is working properly you are now ready to begin welding.

WARNING, other safety precautions such as protective clothing, adequate ventilation, breathing protection, such as a Compact Air PAPR or equal, fire extinguisher, and protection for co-workers, should also be considered.

Technical Information

ARCONE® auto-darkening filters protect the user against harmful ultra-violet and infrared UV/IR rays, both in the dark and light state. No matter what shade the filter is set to the UV/IR protection is always there. You can never burn your eyes due to optical radiation passing through the filter.

Warning: Severe burns are possible with a damaged lens (cracks, pits, holes, etc.). Do not use damaged lens. Optical radiation can possibly enter in from behind the helmet from other welders welding in the immediate area.

Shade Adjustment (refer to Fig. 2 & 3). See Shade Selection Guide (Table 2) for recommended shades for arc welding applications. See **Filter Specification** section for filter specifications. **Single Shade Filters:** Shade is fixed; no adjustment.

Sensitivity Adjustment (refer to Fig. 2 & 3).

Analog Controlled Variable Filters (4000VI3 & 5000VI): manually control the sensitivity knob located on the outside of the helmet to adjust sensitivity. Note: the lowest setting may keep the filter in the light state when used for grinding.

Digitally Controlled (3000V3): Briefly press the Sensitivity or Select button (depends on model), an LED will indicate the current setting. Press and hold the button to change the setting.

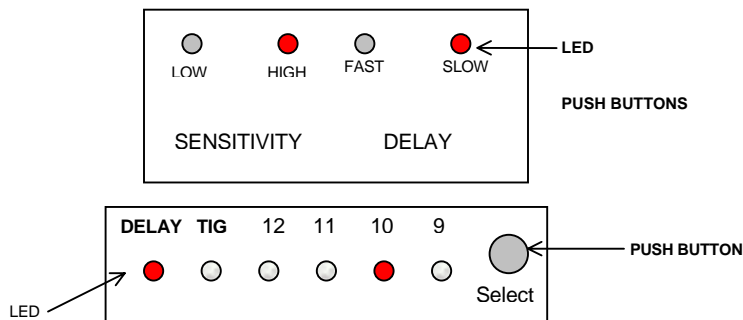


Fig. 2: Digital Controls

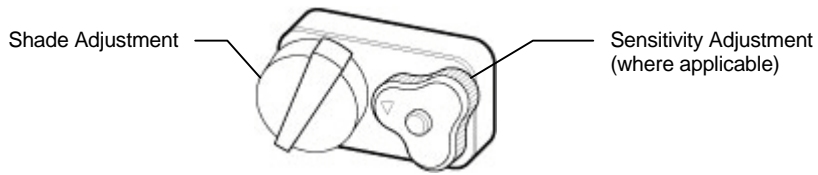


Fig 3: Analog Controls

Delay Adjustment and Grind Mode (not on all models)

Change the Delay by pressing; do not hold down, the Delay/Grind button. Activate Grind mode by pressing and holding the Delay/Grind or Grind button (depends on model) down until the filter flashes. Deactivate Grind mode by pressing, do not hold down, the Delay/Grind or Grind button (**Note: the filter will not

Maintenance

Your filter requires virtually no maintenance other than periodic cleaning when the lens becomes dirty or clouded from smoke. Clean your filter by using window cleaner or a mild soapy solution and a soft cloth or paper towel. Change the cover plates frequently. Proper care will extend the life of your filter and guarantee the best operation possible.

Spatter Protection

DAMAGE CAUSED BY SPATTER IS NOT COVERED BY WARRANTY

There are many reasons why spatter can damage the auto-darkening filter. Missing, incorrect, damaged, or distorted cover plates, and excessive spatter build-up in and around the areas where the cover plates are retained are just a few examples. Any one or combination of these will allow spatter to enter the filter area and pit the filter glass.

NOTE, change your cover plate when it loses its flexibility and or becomes bowed or distorted. Clean any build-up from the area where the cover plate is retained.

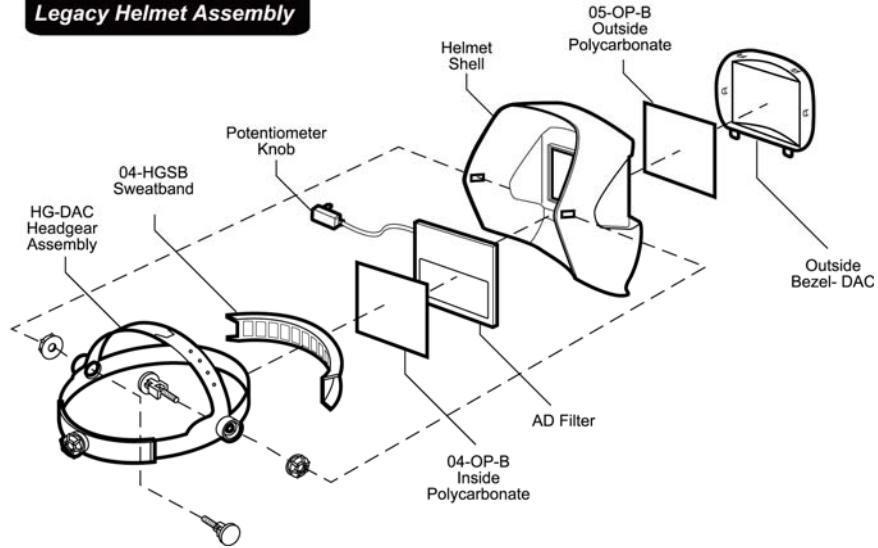
The Classic and Legend welding helmets have been designed to accept an additional protective lens. This additional lens installs immediately in front of the auto-darkening filter and behind the outer polycarbonate clear lens thus adding an even greater level of spatter protection. ***Users with excessive spatter applications can rely on the greater protection provided by this options. See information below.***

Filter Removal Diagram



PARTS SELECTION GUIDE

Legacy Helmet Assembly



Specifications Single Shade & Variable Shade Filters (Table 1)

	2000F	3000V3	4000VI3	5000V1
Viewing Area	5.2 sq. in. (3290mm)	5.2 sq. in. (3290MM)	7.1 sq. in. (3290MM)	7.1 sq. in. (4608MM)
Filter Dimensions	90 X 110	90 X 110	90 X 110	90 X 110
ARC Sensing	Two sensors	Three sensors	Three sensors	Two sensors
Sensitivity Control	Fixed	Digital: High-TIG Low - MIG	Analog: High-Low	Analog-High Low
Switching Time Seconds	5/10,000 0.5 milliseconds	1/10,000 0.1 milliseconds	1/10,000 0.1 milliseconds	1/10,000 0.1 milliseconds
Primary Power	Solar Cells	Solar Cells	Solar Cells	Solar Cells
Back-up Power	Lithium Battery	Lithium Battery	Lithium Battery	Lithium Battery
Operating & Storage Temp.	14 – 131F (-10 – 55C)	14 – 131F (-10 – 55C)	14 – 131F (-10 – 55C)	14 – 131F (-10 – 55C)
UV / IR Protection	Up to Shade 16	Up to Shade 16	Up to Shade 16	Up to Shade 16
Dark to Light Delay	0.1 seconds	0.1 or 2	0.1 or 2	0.1 or 2
Light Shade	3	4	4	4
Dark Shade	11	10,11,12,13	9 to 13	9 to 13
Enclosure Integrity	Dust and Water Resistant	Dust and Water Resistant Dust	Dust and Water Resistant Dust	Dust and Water Resistant Dust
Grind Mode	No	No	Yes	Yes
Standards	ANSI Z87.1 CE pending	ANSI Z87.1 CE Pending	ANSI Z87.1 CE Pending	ANSI Z87.1 CE Pending

Shade Selection Guide (Table 2)

Operation	Arc Current	Minimum Shade	Comfort Shade
Stick (SMAW)	< 60	7	---
	60 to 160	8	10
	160 to 250	10	12
	250 to 550	11	14
MIG (GMAW)	<60	7	---
	60 to 160	10	11
	160 to 250	10	12
	250 to 500	10	14
TIG (GTAW)	<50	8	10
	50 to 150	8	12
	150 to 500	10	14
Carbon Arc-light	<500	10	12
Carbon Arc-heavy	500 to 1000	11	14
Plasma Arc (PAW)	< 20	6	8
	20 to 100	8	10
	100 to 400	10	12
	400 to 800	11	14
Plasma Cutting	< 300	8	9
	300 to 400	9	12
	400 to 800	10	14
Carbon Arc (CAW)	---	---	14

Trouble Shooting Guide

The Auto-Darkening Filter will not darken after striking an arc

- Test the auto-darkening filter as directed in "Preparation for use" section page 1.
- Make sure that the outer cover plate is clean, clear and unobstructed.
- Remove and inspect the auto-darkening filter making sure that the sensors and solar panels are unobstructed, clean and not broken or discolored.
- Cease using this product if problem persists. Refer to Return Procedure on page 9 and Contact **ArcONE® Customer Service**.

The Auto-Darkening Filter goes light or flickers on/off while welding

- Clean or replace outer clear polycarbonate lens if it becomes soiled or cloudy
- Check to make sure that the sensors and solar panels are not damaged, dirty, or covered with a smoky film. Clean filter as directed in the Maintenance Section.
- Make sure that the sensors and solar panels are not being blocked. Your arms, the welding torch or other objects can block the sensor or solar panels.
- The front of the auto-darkening filter should be perpendicular to the welding arc.
- If the Filter does not hold the dark shade contact **ArcONE® Customer Service**.

The Auto-Darkening Filter stays dark after you stop welding

- Exceeding the temperature limitations may also cause the LCD to stay dark. Let the filter cool down and try not to overheat it again by viewing the arc from the side and not directly above or by increasing the distance the filter is in relationship to the arc.
- Your filter may remain dark after welding if you are facing a bright light or the sun. If this is the case either look away or pass your hand between the source of light and the sensors. By doing this the light source will be interrupted and the filter will clear.

The Auto-Darkening Filter has a crack running through the front viewing area

- The UVIR protection may be compromised resulting in burns caused by Ultraviolet or Infrared radiation. Cease using this product if the problem exists. Refer to Return Procedure on page 9 and Contact **ArcONE® Customer Service**.

The Auto-Darkening Filter appears dark in the center and lighter around the edges

- You are most likely experiencing a common characteristic of an LCD known as angle dependency. See Technical Information on page 2.

Warranty and Service Information

LIMITED WARRANTY

ARCONE[®] warrants all auto-darkening filters for two (2) years from the date of purchase against manufacturing defects resulting from materials or workmanship. Proof of purchase establishing the date of sale and filter serial number must be provided, should a warranty claim be submitted. The purchaser's only remedy under this limited warranty shall be limited to **ARCONE's** sole option to repair, replace or refund (not to exceed the purchase price). This limited warranty is void in the case of unauthorized modification, tampering, and damage due to misuse, abuse, inadequate maintenance or improper storage. This limited warranty is not transferable from the original purchaser to a secondary owner. **ARCONE**[®] shall in no event be liable or responsible for any injury, damage or loss resulting either directly or indirectly from the use or misuse of this product. This limited warranty is exclusive and is in lieu of any other warranty implied either oral or written. Please read the instruction manual carefully to avoid certain situations which may void this limited warranty.

In the unlikely event that the auto-darkening filter malfunctions, the following procedures are to be used to receive efficient service and repair:

Determine if the product is damaged from abuse or misuse. Any pitted marks on the filter possibly from spatter, chips or dents, or cracks, etc., are some indications of operator abuse. In the case of operator abuse, the warranty is void.

If you need to return your filter follow the Return Procedure below.

RETURN PROCEDURE

**Please Do not contact the distributor or retailer
from whom you purchased the filter**

1. Remove the auto-darkening filter from the helmet (see page 5). Record the model number and serial number that are located on the top edge above the solar panel, and also record the date of purchase from your sales receipt.
2. Contact **ARCONE**[®] Customer Service (800-223-4685) for a Return Tag Number. Please return only the auto-darkening filter unless the customer service representative requests otherwise. Pack the filter in a box with adequate packing so no additional damage can occur. Send only the auto-darkening filter, freight prepaid, directly to the **ARCONE**[®] Division, A.C.E. International, 85 Independence Drive, Taunton, MA. 02780.
3. Reference your assigned Repair Tag Number on the outside of the package and on all accompanying paperwork.
4. Provide your complete return address and telephone numbers.
5. Provide an accurate description of the problem along with welding application details such as MIG, TIG, etc., and amperage range.
6. Should there be any charges for non-warranty repairs, Visa, MasterCard, or checks are the only forms of payment accepted. In the case of credit cards purchases include credit card number expiration date, the full name as it appears on the card, and your signature as authorization for the total repair amount.
7. All returns, which follow the above procedures, will be processed within 2 business days.
8. All warranty repairs are covered for the balance of the original warranty period, which is established from your proof of purchase date.
9. All non-warranty repairs carry a 90-day, limited warranty. The period begins the date the product is returned to you.



ARCONE® Division of A. C. E. International Company
85 Independence Drive,
Taunton, MA 02780
Tel: 508-884-9600 Toll Free: 800-223-4685 Fax: 508-884-9666
Web Site: www.arc1weldsafe.com