

Operator's Manual

VIKING[™] ArcSpecs[™] **Auto-Darkening Welding Goggles** **with 4C[™] Technology**



GRAPHICS MAY VARY



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SAFETY WARNINGS – READ BEFORE USING

WARNING

ARC Rays can injure eyes and burn skin



- Before welding, always inspect goggle and filter lens to be sure they are fitted properly, in good condition and not damaged.
- Check to see that the clear lens is clean and securely attached to the goggles.
- Always wear safety glasses or goggles under the welding goggles and protective clothing to protect your skin from radiation, burns and spatter.
- Ensure that optical radiation from other welder's arcs in the immediate area does not enter in from behind the goggles and auto-darkening filter.

Note: Auto-darkening filters in Lincoln goggles are designed to protect the user against harmful ultra-violet and infrared rays both in the dark and light states. No matter what shade the filter is set to, the UV/IR protection is always present.

FUMES AND GASES can be dangerous to your health.

- Keep your head out of fumes.



- Use enough ventilation or exhaust at the arc or both to keep fumes and gases from your breathing zone and general area.
- **When welding with electrodes which require special ventilation such as stainless or hard facing (see instructions on container or MSDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and within applicable OSHA PEL and ACGIH TLV limits using local exhaust or mechanical ventilation. In confined spaces or in some circumstances, outdoors, a respirator may be required. Additional precautions are also required when welding on galvanized steel.**

Refer to <http://www.lincolnelectric.com/safety>
for additional safety information.

WELDING GOGGLE INFORMATION

This Auto-Darkening Welding Goggle will automatically change from a light state (shade 3.5) to a dark state (Shade 5-13) when arc welding starts.

The filter automatically returns to a light state when the arc stops.

Match your welding application to the shade indicated on the shade chart.
(See Page 6)

- Operating temperature: 14°F ~ 131°F (-10°C ~ 55°C).
- Do not use or open the auto-darkening filter if damaged by shock, vibration or pressure.
- Keep the sensors and solar cell clean. Clean the goggle filter using soapy water solution and soft cloth which should be damp but not saturated.

This Auto-Darkening Welding Goggle is designed for use with GMAW, GTAW, SMAW welding, or Plasma Arc and air carbon cutting.

The goggles provide protection from harmful UV and IR radiation, in both dark and light states.

The goggles contain four sensors to detect the light from the welding arc, resulting in the lens darkening to a selected welding shade.

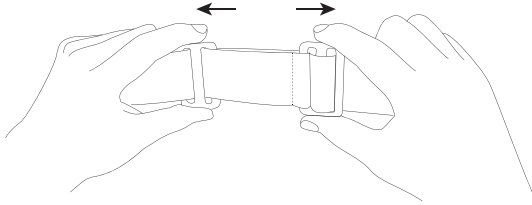
- Do not use solvents or abrasive cleaning detergent.
- If cover lens is spattered or covered with dirt, it should be replaced immediately.
- Use only replacement parts specified in this manual.
- Do not use the goggles without inside and outside cover lenses properly installed.

SPECIFICATIONS

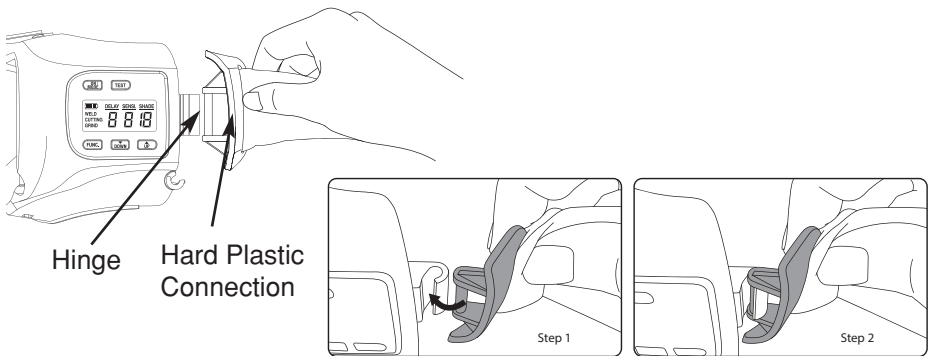
Optical Class	1/1/1/1
LCD Viewing Area	47.0 sq. cm. (7.29 sq. in.)
Goggle Size	187 x 75 x 82mm (7.4 x 2.9 x 3.2in.)
UV/IR Protection	Up to Shade DIN 16 at all times
Arc Sensors	4
Light State Shade	DIN 3.5
Variable Welding Shades	DIN 5 to 13
Shade Control	Digital Display Control, Variable Shade
Power Supply	Solar cell with battery assist
Grind Warning	Internal Green Light
Battery	CR2450 Lithium (1 Required)
Power On/Off	Fully automatic
Light to Dark Switching Time	0.00004 sec. (1/25,000 sec.)
Dark to Light Switching Time	Variable 0 to 9 (0.1 to 1.0 sec.), Digital Display Control
Sensitivity Control	Variable 0 to 9, Digital Display Control
TIG Rating	DC≥ 2 amps; AC≥ 2 amps
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C)
Storage Temperature	-4° ~ 158°F (-20°C ~ 70°C)
Total Weight	335g (11.8 Oz.)
Compliance	ANSI Z87.1, CSA 94.3

OPERATING INSTRUCTIONS

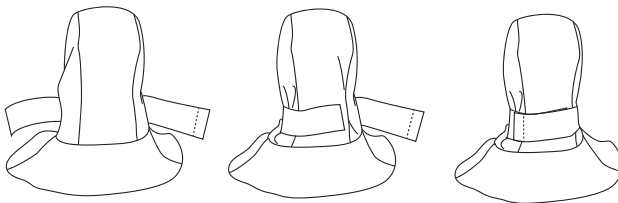
HEADBAND ADJUSTMENT: Headband Tightness is adjusted by loosening or tightening the elastic band about the two adjustment clips.



HEADBAND REMOVAL: Locate the hinges on the Auto-Darkening Goggle and pull the hard plastic connection of the headband toward the opening in the hinge. To insert a new headband simply snap the connection back into the opening of the hinge. See images showing Step 1 and Step 2 for a closer view of the connection.



HEADCOVERING ADJUSTMENT: To adjust the headcovering about the neck and lower face, locate the two straps on either side shown in the image on the left. Pull the straps to the preferred tightness then use the hook and loop fasteners to secure the fit as shown in the center and right images.



GOGGLE OPERATION/FEATURES

ON/MODE Button

- **ON-OFF** (Lens will automatically darken when arc is present)

The Auto-Darkening goggle will automatically turn on, the digital display control will activate, and the goggles will be ready for use. It is recommended that the user review the goggle settings prior to use. The welding goggles will automatically turn off after a half hour of no use.

- **MODE CONTROL**

Short press of the ON/MODE button to select the mode appropriate for the work activity:

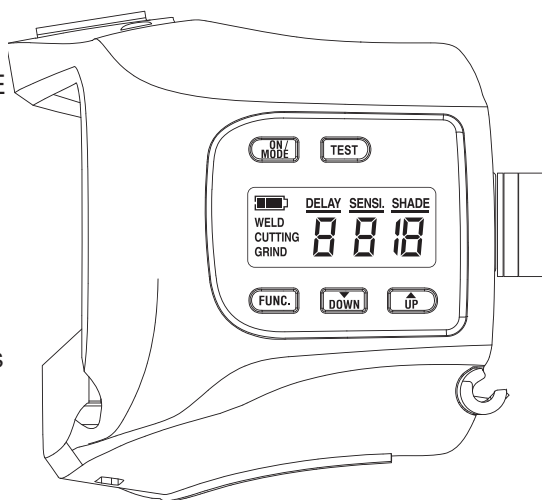
Weld Mode – used for most welding applications. Push "FUNC" button to adjust shade number, sensitivity, and delay settings before welding. In this mode, the lens turns to dark immediately when you start welding.

Cutting Mode – used for cutting applications.

Push "FUNC" button to adjust shade number, sensitivity, and delay settings before cutting.

Grind Mode – used for grinding applications.

In this mode the lens shade is fixed shade No. 4. Shade number, sensitivity, and delay settings cannot be adjusted when in grind mode.



Test Button

Press and hold test to preview shade selection before welding. When released the viewing window will automatically return to the light state (3.5 Shade).

Battery Indicator

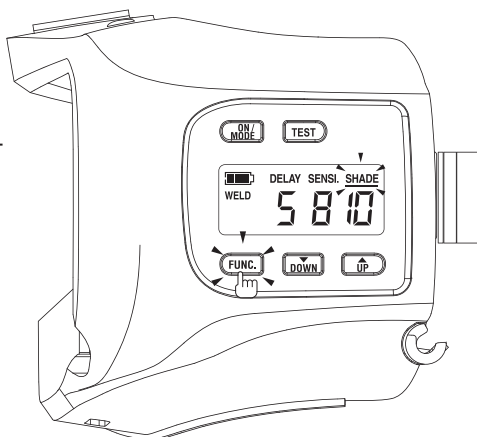
The symbol  shows the current state of the battery. The volume of batteries has four level symbols (See Figure 1). The symbol  appears on the display screen before 1 to 2 days of battery life remains, the CR2450 lithium battery should be replaced at this time. The symbol of the Battery Indicator is not real-time and is updated shortly after pushing the ON/MODE button.

Variable Shade Control

After turning on the lens, press the "FUNC" button to choose "SHADE", adjust the lens shade number. Use the shade control UP and DOWN buttons to select the lens darkened state.

The shade range for each mode is as follows:

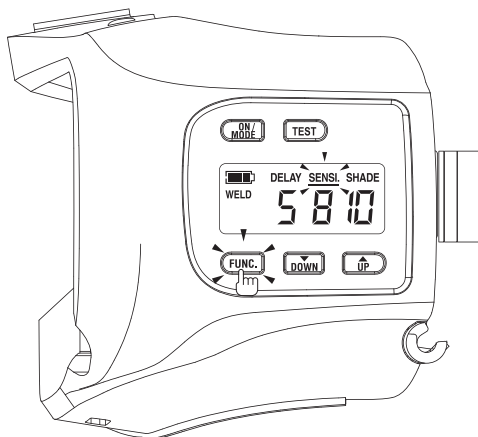
- Weld Mode - No. 9 ~ No. 13
- Cutting Mode - No. 5 ~ No. 8
- Grind Mode - No. 4



Sensitivity Control

Press "FUNC" button to choose "SENS". Use Sensitivity Control "UP" and "DOWN" buttons to make the lens more or less sensitive to arc light for different welding processes. Sensitivity settings 3 through 7 are the normal settings for everyday use. The sensitivity ranges for each mode are as follows:

- Weld Mode / Cutting Mode - No. 0 ~ No. 9
- Grind Mode - No sensitivity adjustment



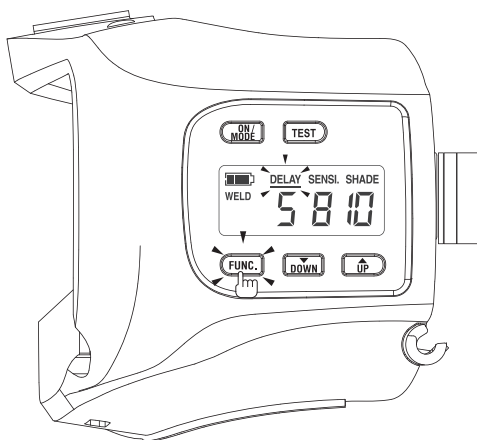
It may be necessary to adjust goggle sensitivity to accommodate different lighting conditions or if the lens is flashing On and Off. Adjust the lens sensitivity in lighting conditions the mask will be used in. Adjust mask sensitivity as follows:

- Press the "DOWN" button to lower setting to 0.
- Face the mask in the direction of use, exposing it to the surrounding light conditions.
- Press the "UP" button repeatedly until the lens darkens, then press the "DOWN" button until the lens clears. The goggles are ready for use. Slight readjustment may be necessary for certain applications or if the lens is flashing on and off.

Delay Control

Press "FUNC" button to choose "DELAY", begin lens delay adjustments. Use the Lens Delay Control "UP" and "DOWN" buttons to adjust the time for the lens to switch to the clear state after welding or cutting.

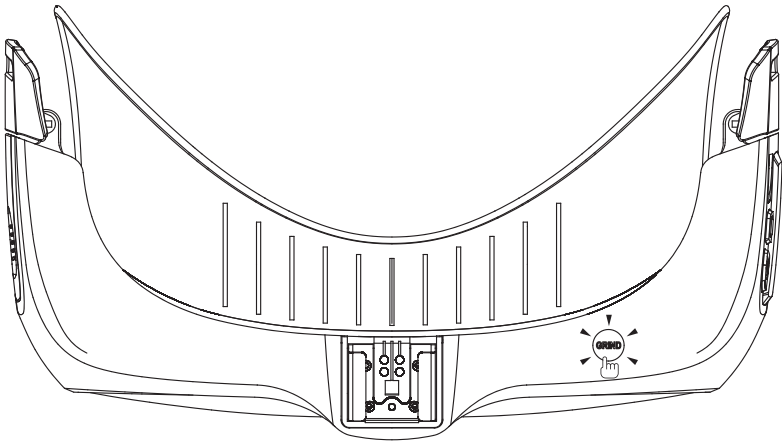
- Weld Mode / Cutting Mode - No. 0 ~ No. 9
- Grind Mode - No Delay Adjustment



The delay is particularly useful in eliminating bright after-rays present in higher amperage applications where the molten puddle remains bright momentarily after welding. Use the Lens Delay Control buttons to adjust delay from 0 to 9 (0.1 to 1.0 second). When welding ceases, the viewing window automatically changes from the darkened state back to light state but with a pre-set delay to compensate for any bright afterglow on the work piece. The delay time/response can be set from 0 to 9. It is recommended to use a shorter delay with spot welding application and a longer delay with applications using higher current. Longer delays can also be used for low current TIG welding in order to avoid the lens lightening when the light path to the sensors is temporarily obstructed by a hand, torch, etc.

GRIND BUTTON OPERATION

In order to switch the Auto Darkening Goggle from a Cutting or Welding Shade into Grind Mode first locate the plastic button on the top and left side of the Auto-Darkening Goggle. After the button has been located press and hold it for 3 seconds. A green LED inside of the goggle should blink every 3 seconds after the button is pressed to indicate you are in Grind Mode. To switch back to the previous Cutting or Welding shade simply press and hold the button for 3 seconds. Grind mode is intended for grinding only not for welding.



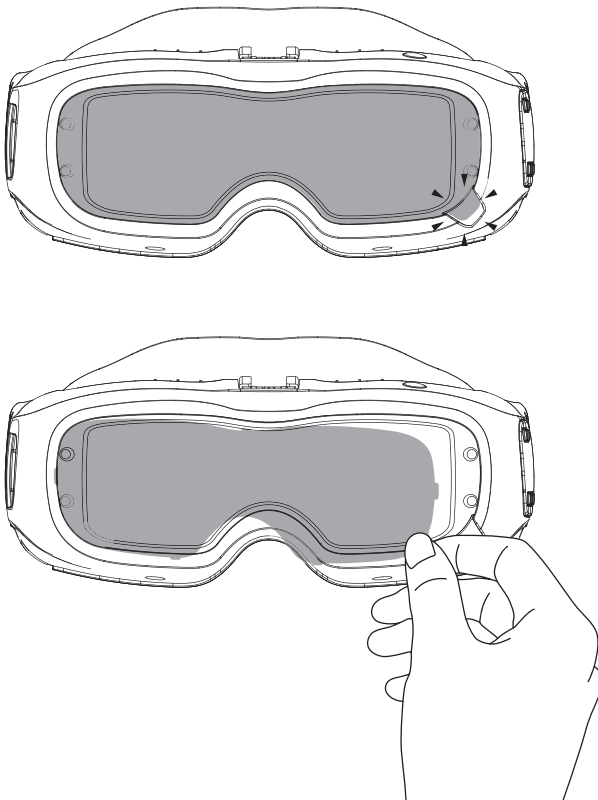
GOGGLE CARE AND MAINTENANCE

Cleaning: Cleaning: Clean goggles by wiping with a soft cloth. Clean goggle surfaces regularly. Do not use strong cleaning solutions. Clean sensors with soapy water solution and a clean cloth and wipe dry with a lint-free cloth. Do **NOT** submerge goggles in water or other solution.

Storage: Store in a clean, dry location.

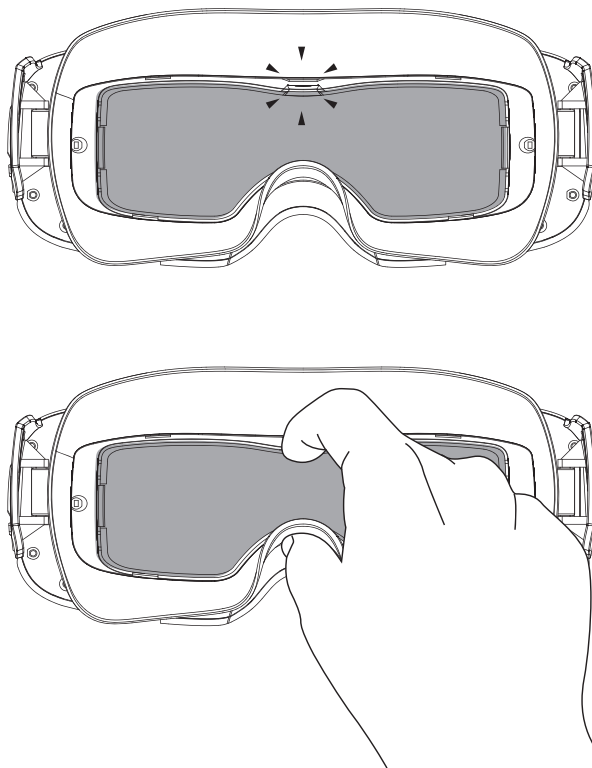
Replacing Outside Cover Lens:

Replace the outside cover lens if it is damaged. Remove the outside cover lens from the goggle as shown below. Install new outside cover lens into goggle. Make sure outside cover lens is installed the same way as it was removed.



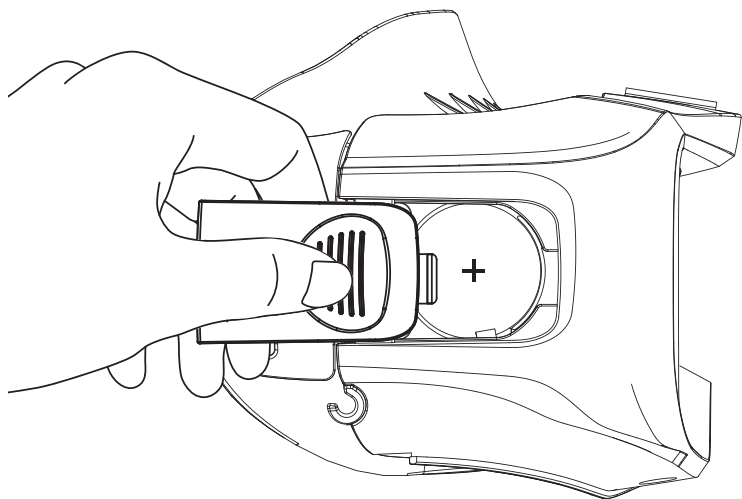
Replacing Inside Cover Lens:

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



Battery Replacement:

To remove the battery, locate the battery cover on the left hand side of the goggle. Press the battery cover down in the indented area with your thumb and pull the cover toward the back of the goggle as shown in the image below. Replace the battery and reinstall the battery cover by sliding the piece back into position.

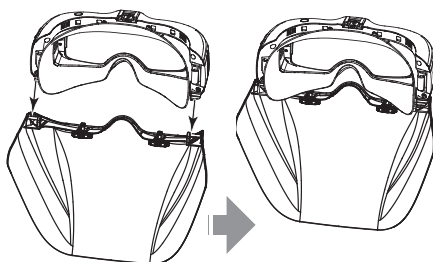


Face Cover Replacement:

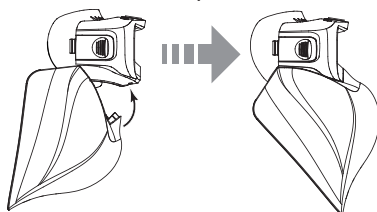
To install a new face cover, first snap the piece into the two hinges on either side of the goggle shown in Step 1. For Step 2, rotate the face cover so that it is flush with the goggle. Lastly, fasten the two screws attached to the face cover into the goggle by turning them clockwise as shown in Step 3.

To remove the face cover, turn the screws counter-clockwise, rotate the cover away from the goggle, and unsnap the cover from the two hinges on the goggle.

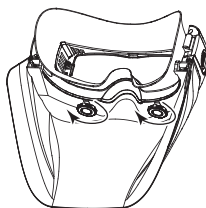
Step 1



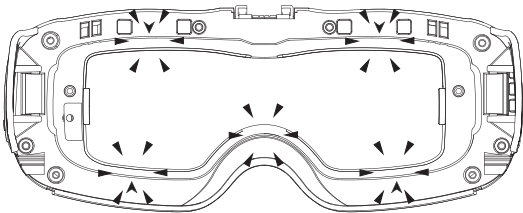
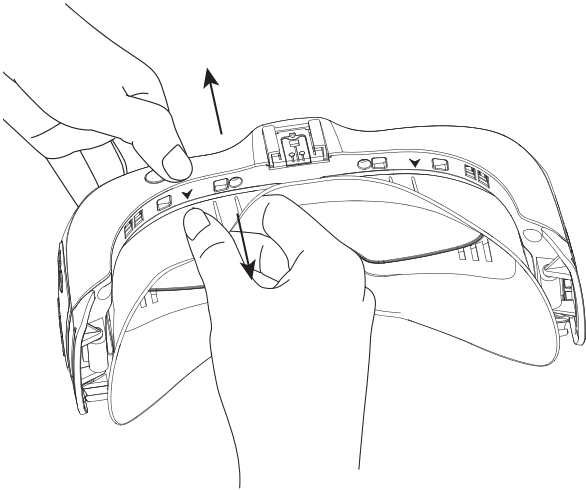
Step 2



Step 3



Change the Silicone Frame: Replace the silicone frame if it is damaged or worn. Push the frame down toward the center of the goggle lens as shown in the first image below and pull to remove. Install new silicone frame by pressing it into all five locking positions shown in the two images at the bottom of the page.



SHADE GUIDE SETTINGS

GUIDE FOR SHADE NUMBERS				
OPERATION	ELECTRODE SIZE 1/32 in. (mm)	ARC CURRENT (A)	MINIMUM PROTECTIVE SHADE	SUGGESTED ⁽¹⁾ SHADE NO. (COMFORT)
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	9 12 14
Torch brazing		—	—	3 or 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

If your goggles do not include any one of the shades referenced above, it is recommended you use the next shade darker.

TROUBLESHOOTING GUIDE

Test your auto-darkening goggles prior to welding by directing the front of the goggles toward a bright source of light. The, using your finger, rapidly cover and uncover the sensors. The goggles should darken momentarily as the sensors are exposed. A torch striker can also be used.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Goggles do not darken when TEST button is pushed.	Low battery.	Replace battery.
Difficult to see through goggles.	Front cover lens dirty.	Clean or replace front cover lens.
	Goggles are dirty.	Clean the Auto-Darkening goggles with soapy water solution and soft cloth.
Goggles do not darken when arc is struck.	Sensitivity is set too low.	Adjust sensitivity to required level.
	Front cover lens dirty.	Clean or replace front cover lens.
	Front cover lens is damaged.	Check for cracked or pitted front cover lens and replace as required.
	Sensors are blocked.	Make sure you are not blocking the sensors or solar panels with your arm or other obstacle while welding. Adjust your position so that the sensors can see the weld arc.
	Grind Mode Selected	Make sure proper shade is selected.
Goggles darkening without arc being struck.	Sensitivity set too high.	Adjust sensitivity to required level.
Goggles remain dark after completing a weld.	Delay time set too high.	Adjust delay time to required level.
Goggles will not switch to grind mode after pressing button.	Button was not held for 3 seconds.	Press and hold button for 3 seconds



WARNING

ADF is cracked.



Weld spatter is damaging the goggle.

Cease (STOP) using this product if this problem exists. UV/IR protection may be compromised resulting in burns to the eyes and skin.

Missing, damaged, broken, cracked or distorted outside cover lens.

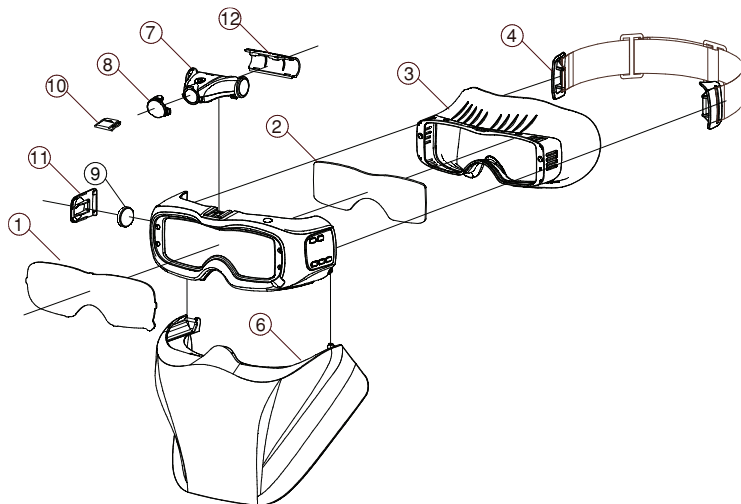
Replace outside cover lens as needed.

WARRANTY INFORMATION - Reference IMWS1 included in Literature.

SPATTER DAMAGE IS NOT COVERED BY WARRANTY:

Do not use this product without the correct protective clear lenses installed properly on both sides of the Auto-Darkening Goggles. The clear lenses supplied with the welding goggles are properly sized to work with this product and substitutions from other supplier should be avoided.

REPLACEMENT PARTS



ITEM	PART NO.	DESCRIPTION	QTY
1.	KP4649-1	OUTSIDE COVER LENS (PKG. QTY: 5)	1
2.	KP4648-1	INSIDE COVER LENS (PKG. QTY: 5)	1
3.	KP4652-1	GOGGLE FRAME	1
4.	KP4646-1	ELASTIC HEADBAND	1
*5.	KP4645-1	HEADCOVERING	1
6.	KP4644-1	FACE COVER	1
7.	KP4647-1	LED LIGHT	1
8.	KP4705-1	LED COVER LENS (PKG. QTY: 5)	1
9.	KP4491-1	CR2450 REPLACEMENT BATTERY	1
10.	M26983-3	LED COVER	1
11.	M26983-4	ADF BATTERY COVER	1
12.	M26983-18	LED BATTERY COVER	1
*13.	M26983-21	FACE COVER SCREW	1

*Not illustrated

CUSTOMER ASSISTANCE POLICY

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