OM-280995C
2017–12

Weld-Mask™ 2

To help us serve you better, go to www.MillerWelds.Com/Register

TABLE OF CONTENTS

SECTION 1 – WELDING HELMET AND WELDING GOGGLE SAFETY PRECAUTIONS – READ BEFORE USING **1**
1-1. Symbol Usage 1
1-2. Arc Welding Hazards 1
1-3. Proposition 65 Warnings 3
1-4. Lens Shade Selection Table 3
1-5. Principal Safety Standards 3
SECTION 2 – SPECIFICATIONS **4**
SECTION 3 – OPERATING INSTRUCTIONS **5**
3-1. Auto-Darkening Weld-Mask Components 5
3-2. LCD Screen And Controls 6
3-3. Power Button And Low Battery Notification 6
3-4. Variable Shade Control 7
3-5. Delay Control 7
3-6. Sensitivity Control 8
SECTION 4 – REPLACING CONSUMABLE LENSES AND INSERTING MAGNIFYING LENS FRAME **9**
4-1. Replacing The Lens Cover 9
4-2. Changing Inner Anti-Fog Lens 10
4-3. Inserting Magnifying Lens Frame 10
SECTION 5 – REPLACING THE BATTERY **11**
SECTION 6 – REPLACING THE SILICONE SKIRT **11**
SECTION 7 – REPLACING THE STRAP ASSEMBLY **12**
SECTION 8 – ADDING LIGHT HOLDER ASSEMBLY **12**
SECTION 9 – MAINTENANCE **12**
SECTION 10 – TROUBLESHOOTING **13**
SECTION 11 – PARTS LIST **14**
SECTION 12 – LIMITED WARRANTY **14**

SECTION 1 – WELDING HELMET AND WELDING GOGGLE SAFETY PRECAUTIONS – READ BEFORE USING

Weld Gog. 2016-11

Protect yourself and others from injury — read, follow, and save these important safety precautions and operating instructions.

1-1. Symbol Usage

DANGER! – Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

Indicates a hazardous situation which, if not avoided, could result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.

NOTICE *– Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

This group of symbols means Warning! Watch Out! ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

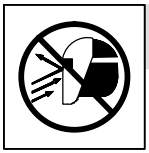
1-2. Arc Welding Hazards

Only qualified persons should install, operate, maintain, and repair this unit.

ARC RAYS can burn eyes and skin.

Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Wear welding helmet or welding goggles fitted with a proper shade of filter to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards). Refer to Lens Shade Selection table in Section 1-4.
- Wear approved safety glasses with side shields under your helmet. Safety glasses are not required with auto–darkening welding goggles; the welding goggles meet the eye protection requirements of ANSI Z87.1.
- Use protective screens or barriers to protect others from flash, glare, and sparks; warn others not to watch the arc.
- Wear body protection made from durable, flame–resistant material (leather, heavy cotton, wool). Body protection includes oil-free clothing such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Before welding, adjust the auto-darkening lens sensitivity setting to meet the application.
- Stop welding immediately if the auto-darkening lens does not darken when the arc is struck. See the Owner's Manual for more information.



WELDING HELMETS AND WELDING GOGGLES do not provide unlimited eye, ear, and face protection.

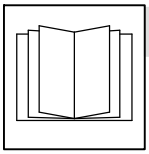
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Use impact resistant safety spectacles or goggles and ear protection at all times when using the welding helmet. Safety glasses are not required with auto−darkening welding goggles; the welding goggles meet the eye protection requirements of ANSI Z87.1.
- Do not use the welding helmet or welding goggles while working with or around explosives or corrosive liquids.
- Do not weld in the overhead position while using the welding helmet or welding goggles.
- Inspect the auto-lens frequently. Immediately replace any scratched, cracked, or pitted cover lenses or auto-lenses.
- Lens and retention components must be installed as instructed in this manual to ensure compliance with ANSI Z87.1 protection standards.

NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.



READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform installation, maintenance, and service according to the Owner's Manuals, industry standards, and national, state, and local codes.

FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use local forced ventilation at the arc to remove welding fumes and gases. The recommended way to determine adequate ventilation is to sample for the composition and quantity of fumes and gases to which personnel are exposed.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Safety Data Sheets (SDSs) and the manufacturer's instructions for adhesives, coatings, cleaners, consumables, coolants, degreasers, fluxes, and metals.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watchperson nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

1-3. Proposition 65 Warnings

Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

This product contains chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm. *Wash hands after use.*

1-4. Lens Shade Selection Table

Process	Electrode Size in. (mm)	Arc Current in Amperes	Minimum Protective Shade No.	Suggested Shade No. (Comfort)*
Shielded Metal Arc Welding (SMAW)	Less than 3/32 (2.4) 3/32–5/32 (2.4–4.0) 5/32–1/4 (4.0–6.4) More than 1/4 (6.4)	Less than 60 60–160 160–250 250–550	7 8 10 11	–– 10 12 14
Gas Metal Arc Welding (GMAW) Flux Cored Arc Welding (FCAW)		Less than 60 60–160 160–250 250–500	7 10 10 10	–– 11 12 14
Gas Tungsten Arc Welding (TIG)		Less than 50 50–150 150–500	8 8 10	10 12 14
Air Carbon Arc Cutting (CAC-A)	Light Heavy	Less than 500 500–1000	10 11	12 14
Plasma Arc Cutting (PAC)		Less than 20 20–40 40–60 60–80 80–300 300–400 400–800	4 5 6 8 8 9 10	4 5 6 8 9 12 14
Plasma Arc Welding (PAW)		Less than 20 20–100 100–400 400–800	6 8 10 11	6–8 10 12 14

Reference: ANSI Z49.1:2012

* Start with a shade that is too dark to see the weld zone. Then, go to a lighter shade which gives a sufficient view of the weld zone without going below the minimum.

1-5. Principal Safety Standards

Safety in Welding, Cutting, and Allied Processes, ANSI Standard Z49.1, is available as a free download from the American Welding Society at http://www.aws.org or purchased from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

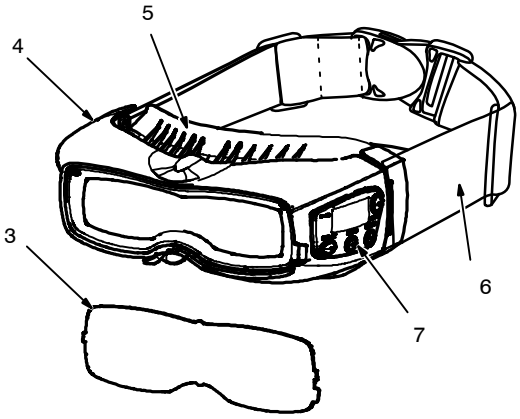
Safe Practice For Occupational And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

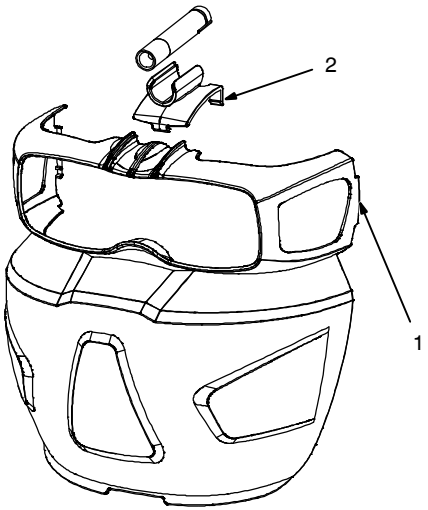
SECTION 2 – SPECIFICATIONS

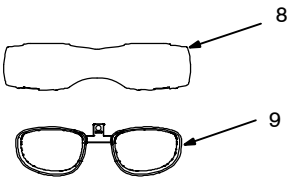
Applications	Arc Welding, Plasma Cutting, Oxy-Fuel Welding And Cutting
Viewing Field	124 x 30 mm
Operating Modes	Three: Weld, Cut, X-Mode
Reaction Time	0.00004 sec (1/25,000)
Available Shades *All Shades Provide Continuous UV And IR Protection.*	Cut: 5–8 Weld: 9–13 Light State: No. 3 (Passive Mode) ⚠ **Goggles Can Be Used For Grinding In Light State (Passive Mode) Only When Used With Customer-Supplied Face Shield.**
Inside Lens	Meets Eye Protection Requirements Of ANSI Standard Z87.1
Sensitivity Control	Five Sensitivity Levels From Low To High
Delay Control	Seven Delay Control Levels From Short (1) To Long (7)
Automatic Power	None Shuts Lens Off 30 Minutes After Last Arc Is Struck.
Low Battery Light	Red LED Illuminates To Indicate Five Hours Of Battery Life Remains
Power Supply	One CR2450 Lithium Battery Approximate Run Time Of 1000 Hours
Sensors	Two
Operating Temperature	23°F to 131°F /– 5°C to +55°C ☞ *When Stored In Extremely Cold Temperatures, Warm Weld-Mask To Ambient Temperature Before Welding.*
Storage Temperature	–4°F to 158°F / –20°C to +70°C ☞ *When Stored In Extremely Cold Temperatures, Warm Weld-Mask To Ambient Temperature Before Welding.*
Total Weight	11.8 oz (334 g) (not including head shroud)
Standards	Meets ANSI Z87.1 (2015) and CSA Z94.3 Standards
Warranty	Two Years From Date Of Purchase (See Section 12)

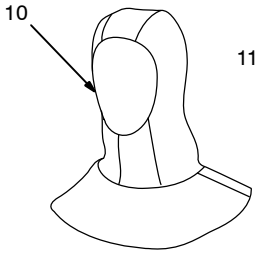
SECTION 3 – OPERATING INSTRUCTIONS

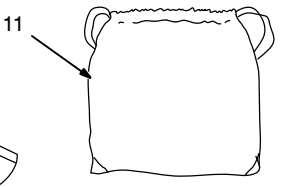
3-1. Auto-Darkening Weld-Mask Components











The auto-darkening goggles provide eye protection only. Use additional personal protection equipment (arc shield, face shield, balaclava, hard hat, etc.) to shield exposed skin and protect head.

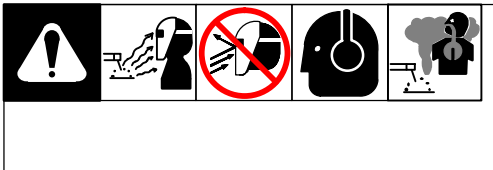
Use auto-darkening goggles only for welding and cutting applications. Remove goggles when work is finished.

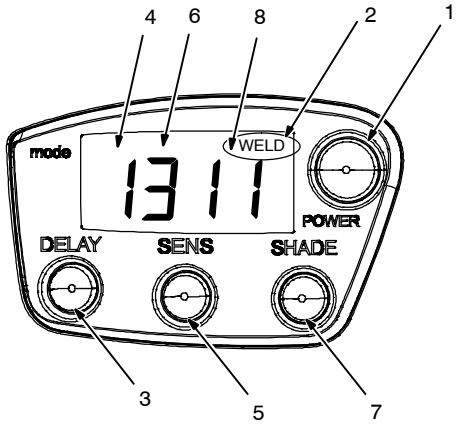
Always wear a face shield (customer supplied) when grinding. The optional arc shield is suitable only for arc welding applications.

Before using the auto-darkening goggles, remove the protective covers from the inside of the auto-darkening lenses.

1 Face Guard
2 LED Flashlight Holder (Optional)
3 Front Cover Lens (Anti-Scratch)
4 Auto-Darkening Goggle
5 Silicone Eye Skirt
6 Headband
7 Control Button And Panel
8 Inner Cover Lens (Anti-Fog)
9 Rx Lens/Mag Lens Frame
10 Fire Retardant Hood
11 Bag

3-2. LCD Screen And Controls

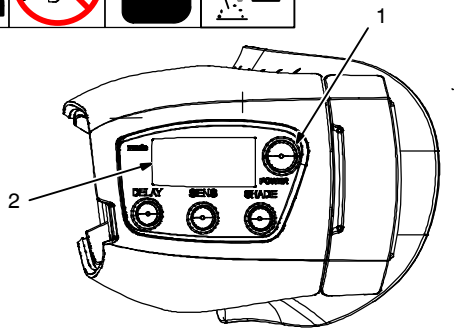




1 Power Button
2 Mode Display
3 Delay Button
4 Delay Display
5 Sensitivity Button
6 Sensitivity Display
7 Shade Button
8 Shade Display

See Sections 3-3 thru 3-6 for description of controls.

3-3. Power Button And Low Battery Notification



1 Power Button

2 LCD Screen

Use button to turn lens on and off. To turn on the lens, press and hold Power button until the LCD screen turns on (about two seconds). Shade and sensitivity adjustments must be made with the lens turned on.

☞ *To check if the lens is on, press the Power button. If lens is on, the screen will blink (darken) briefly.*

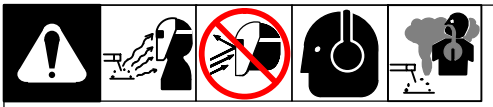
To turn off the lens, press the Power button for two seconds. Lens turns off automatically if not used for 30 minutes.

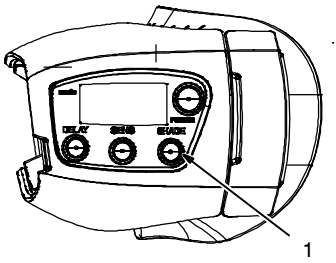
Do not use the weld-mask if the lens does not function as described. (See Section 10, Troubleshooting.)

Low Battery Notification

The LCD screen will display LOW when five hours of battery life remain. If battery power is low, replace with one CR2450 battery. See Section 5.

3-4. Variable Shade Control





1 Variable Shade Control Button

Press the Shade Control button to adjust the lens shade in the darkened state. See Section 1-4 to select proper shade control setting based on your welding process. The shade ranges are as follows:

Weld – Shades 9–13

Cut – Shades 5–8

Start at the highest setting and adjust lighter to suit the application and your personal preference.

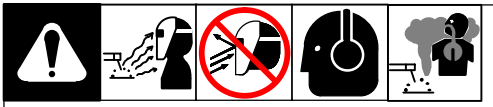
Use the Shade Control to toggle between Welding and Cutting mode. Press and hold for two seconds to change mode. Mode displays in upper right of LCD display.

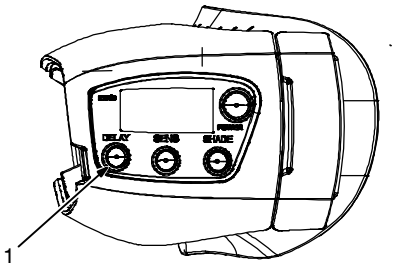
Shade Adjustment

- Turn lens on.
- Press Shade Control button to select desired shade.
- Begin welding or continue with other lens adjustments.

☞ *The lens assembly saves the shade and sensitivity settings.*

3-5. Delay Control

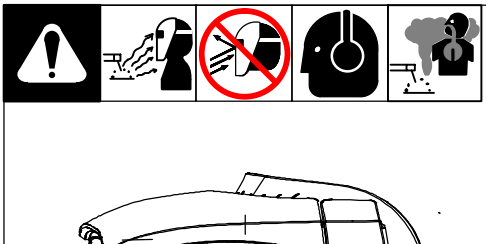


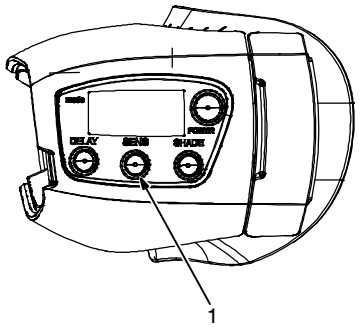


1 Delay Control Button

Press Delay button to adjust the time it takes the lens to change from a dark to light state (7 levels, short [1] to long [7]).

3-6. Sensitivity Control





1 Sensitivity Control Button

Use Sensitivity control to make the lens more responsive to different light levels in various welding processes. **Use a mid-range or 30–50% sensitivity setting for most applications.** It may be necessary to adjust weld-mask sensitivity to accommodate different lighting conditions or if lens is flashing on and off.

Choose from five Sensitivity levels (low to high). Sensitivity level is indicated by the center number on the LCD display.

Sensitivity Adjustment

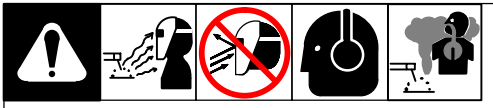
☞ *Adjust weld-mask sensitivity in lighting conditions weld-mask will be used in.*

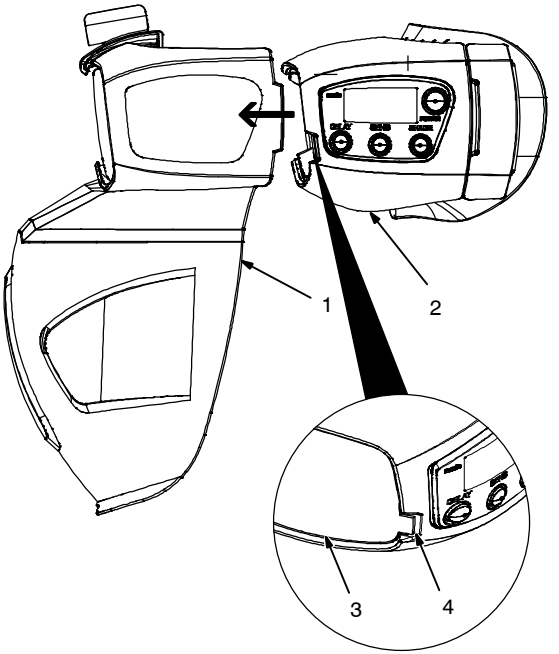
- Turn lens on.
- Press Sensitivity Control button to adjust sensitivity control to highest setting.
- Weld-mask is ready for use. Slight readjustment may be necessary for certain applications or if lens is flashing on and off.
- Use the Sensitivity Control to toggle between Weld/Cut and X-Mode (electromagnetic sensing).

Recommended Sensitivity Settings	
Stick Electrode	Mid-Range
Short Circuiting (MIG)	Low/Mid-Range
Pulsed & Spray (MIG)	Mid-Range
Gas Tungsten Arc (TIG)	Mid/High-Range
Plasma Arc Cutting/Welding	Low/Mid-Range

SECTION 4 – REPLACING CONSUMABLE LENSES AND INSERTING MAGNIFYING LENS FRAME

4-1. Replacing The Lens Cover





Never use the auto-darkening lens without the lens cover properly installed. Welding spatter will damage the auto-darkening lens and void the warranty.

1 Shield

2 Weld-Mask

3 Lens

4 Release Tab

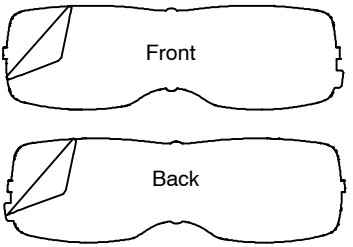
Separate shield from weld-mask.

Pull the lens out of the frame using the release tab on the cover lens.

Remove protective film on both sides of new lens. Install new cover lens.

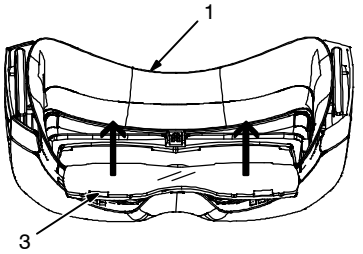
☞ *Be sure both tabs on lens cover are securely fastened in frame slots.*

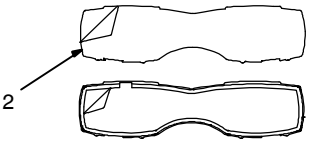
☞ *Be sure the cover lens is seated properly (flat) to prevent fogging.*



☞ *Remove protective film on both sides of new lens.*

4-2. Changing Inner Anti-Fog Lens





1 Goggle

2 Inner Anti-Fog Lens

3 Bottom Slots

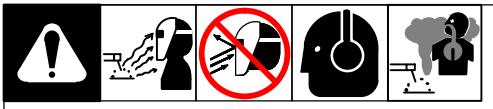
Pull existing lens away from the frame by inserting a screwdriver or other tool into slots (bottom) to release tabs.

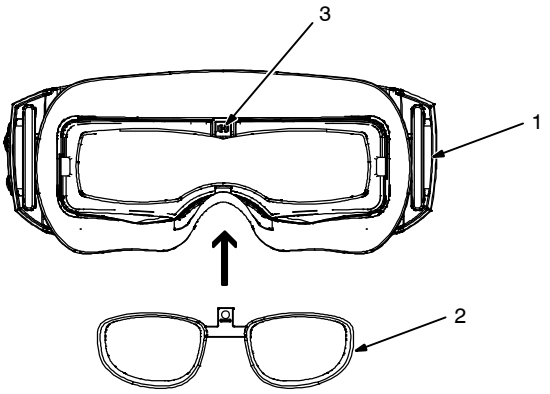
Remove protective film from both sides of new lens cover and install.

☞ *Be sure both tabs on anti-fog lens are securely fastened in frame slots.*

☞ *Be sure the anti-fog lens is seated properly (flat) to prevent fogging.*

4-3. Inserting Magnifying Lens Frame





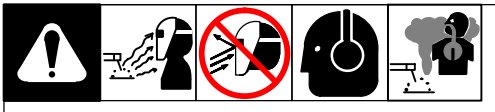
1 Goggle

2 Magnifying Lens Frame

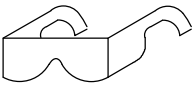
3 Magnifying Lens Slot

Install lens frame tab in slot on top section of silicone eye skirt.

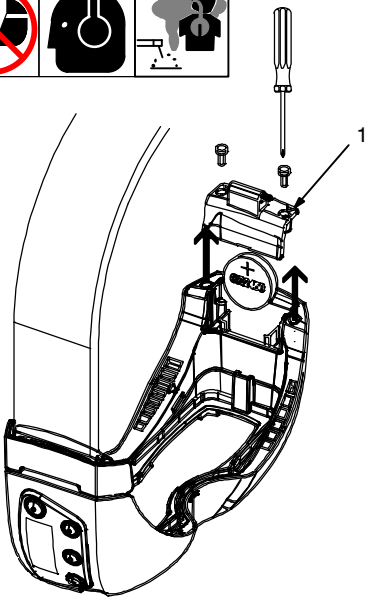
SECTION 5 – REPLACING THE BATTERY



Tools Needed:



phillips



1 Battery Cover

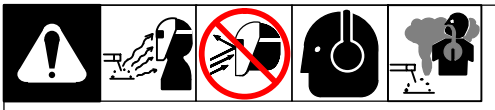
Loosen screws securing battery cover. Remove cover and battery.

Replace with CR2450 lithium battery (1 required) or equivalent (Miller Part No. 217043).

☞ *Be sure Positive (+) side of the batteries faces up.*

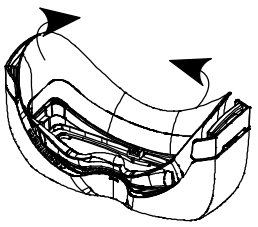
Reinstall the battery cover. To test battery, press the Power button. The display screen should turn on.

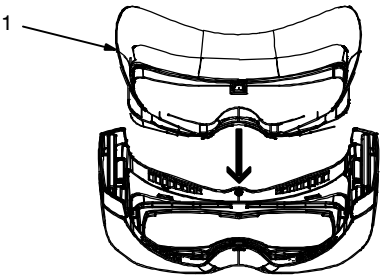
SECTION 6 – REPLACING THE SILICONE EYE SKIRT



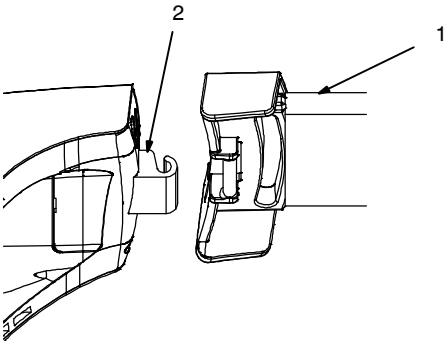
1 Silicone Eye Skirt

Pull silicone eye skirt off. Install new skirt by pressing into weld-mask frame until all four locking positions click.





SECTION 7 – REPLACING THE STRAP ASSEMBLY

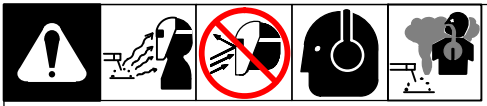


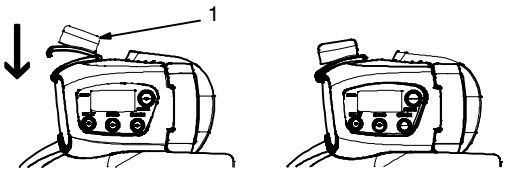
1 Strap

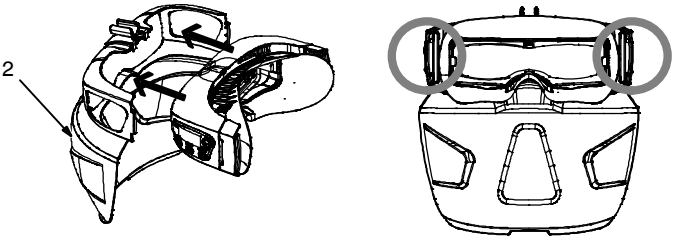
2 Hinge Assembly

Separate strap from weld-mask at hinges. Snap new strap into hinges.

SECTION 8 – ADDING LIGHT HOLDER ASSEMBLY







1 Light Holder

2 Shield

Attach holder from back to front. Detach from front to back.

Be sure all three tabs on holder are securely locked on shield frame.

Be sure weld-mask lens is securely locked in shield.

SECTION 9 – MAINTENANCE

NOTICE – *Never use solvents or abrasive cleaning detergents.*

NOTICE – *Do not immerse the lens assembly in water.*

The weld-mask requires little maintenance. However, for best performance clean after each use. Using a soft cloth dampened with a mild soap and water solution, wipe the cover lenses clean. Allow to air dry. Occasionally, the filter lens and sensors should be cleaned by gently wiping with a soft, dry cloth.

SECTION 10 – TROUBLESHOOTING

Trouble	Remedy
Not switching – auto-lens stays light and does not darken when welding or cutting.	Stop welding or cutting immediately: Make sure the lens is turned On. If power is On, check the shade settings. Also review sensitivity recommendations and adjust sensitivity if possible. Clean lens cover and sensors of any obstructions. Make sure the sensors are facing the arc; angles of 45° or more may not allow the arc light to reach the sensors.
Not Switching – auto-lens stays dark after the arc is extinguished, or the auto-lens stays dark when no arc is present.	Reduce Sensitivity setting (see Section 3-6). In extreme light conditions, it may be necessary to reduce the surrounding light levels. ☞ *If the lens remains dark, press the Auto On/Off button to return lens to the clear state.* Move weld-mask away from light source.
Inconsistent or lighter auto-lens shading in the dark-state, noticeable on the outside edges and corners.	Referred to as an angle of view effect, auto-darkening lenses have an optimum viewing angle. The optimum viewing angle is perpendicular or 90° to the surface of the auto-lens. When that angle of view varies in the dark-state, welders may notice slightly lighter areas at the outside edges and the corners of the lens. This is normal and does not represent any health or safety hazard. This effect may also be more noticeable in applications where magnifying lenses are used.
Sections of the auto-lens are not going dark, distinct lines separate the light and dark areas.	Stop welding or cutting immediately: The auto-lens may be cracked which can be caused by the impact of dropping the weld-mask. Weld spatter on the auto lens may also cause cracking. (The lens may need to be replaced; most cracked lenses are not covered by warranty).
Switching or Flickering – the auto-lens darkens then lightens while the welding or cutting arc is present.	Review the sensitivity setting recommendations and increase the sensitivity if possible. Be sure the arc sensors are not being blocked from direct access to the arc light. Check the lens cover for dirt and spatter that may be blocking the arc sensors. Move closer to arc.

SECTION 11 – PARTS LIST

Item No.	Part No.	Description	Quantity
		Auto-Darkening Weld-Mask 2	
1	280980	Face Guard, (Weld–Mask 2)	1
2	♦281188	Kit, Light Accessory (Includes)	1
	281041	Light, Weld-Mask 2	1
	280990	Light Holder, Weld-Mask 2	1
3	280983	Head Cover, (Weld–Mask 2)	1
4	217043	Battery, Non–Rechargeable Cr2450	1
5	280986	Lens Cover, Anti Fog (Weld–Mask 2)	1
6	280981	Headband, Buckle (Weld–Mask 2)	1
7	280988	Cover, Battery (Weld–Mask 2)	1
8	280985	Front Lens Cover, (Weld–Mask 2)	1
9	280984	Eye Skirt, Silicone (Weld–Mask 2)	1
10	280987	Frame, Magnifying Lens (Weld–Mask 2)	1
11	♦281190	Magnifying Lenses, Diopter .75, Weld–Mask 2	0
11	♦281191	Magnifying Lenses, Diopter 1.00, Weld–Mask 2	0
11	♦281192	Magnifying Lenses, Diopter 1.25, Weld–Mask 2	0
11	♦281193	Magnifying Lenses, Diopter 1.50, Weld–Mask 2	0
11	♦281194	Magnifying Lenses, Diopter 1.75, Weld–Mask 2	0
11	♦281195	Magnifying Lenses, Diopter 2.00, Weld–Mask 2	0
11	♦281196	Magnifying Lenses, Diopter 2.25, Weld–Mask 2	0
11	♦281197	Magnifying Lenses, Diopter 2.50, Weld–Mask 2	0
12	281014	Bag, Carrying (Weld–Mask 2)	1
13	268270	Label, Warning Weld-Mask– Large	1

♦ Optional

SECTION 12 – LIMITED WARRANTY

LIMITED WARRANTY – Subject to the terms and conditions below. Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that the new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OR MERCHANTABILITY AND FITNESS.

Miller weld-masks are warranted for 2 years from the date of purchase. *Proof of purchase is required for warranty transactions so it is imperative that a copy of the original invoice or sales receipt be retained.*

For warranty transactions, contact your Miller Distributor.

Gog Warr 2017-01 Effective January, 2017

Notes

Notes

Notes

Visit our website at
www.MillerWelds.com

Miller Electric Mfg. Co.
An Illinois Tool Works Company
1635 West Spencer Street
Appleton, WI 54914 USA

ORIGINAL INSTRUCTIONS

© 2017 Miller Electric Mfg. Co.