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MODEL: 9100

Introduction

This manual provides essential instructions for the safe and effective use, maintenance, and troubleshooting of your 3M SPEEDGLAS 9100 Series Auto-Darkening Welding Helmet. Please read this manual thoroughly before operating the helmet to ensure proper function and personal safety.

Important Safety Information: Always wear appropriate personal protective equipment (PPE) when welding. This helmet protects against harmful UV/IR radiation and welding spatter, but it is not a substitute for other necessary safety measures. Ensure the helmet is in good working condition before each use.

Product Overview

The 3M SPEEDGLAS 9100 Series Auto-Darkening Welding Helmet is designed to provide advanced eye and face protection during various welding processes. Key features include a smooth up-and-down pivot mechanism, an improved suspension system for comfort, side exhaust vents for optics, and side windows to enhance the field of vision. The auto-darkening filter (ADF) offers UV and infrared protection at all times and is suitable for Stick, MIG, and TIG welding, as well as grinding operations.



Figure 1: 3M Speedglas 9100 Series Auto-Darkening Welding Helmet. The helmet is black with a grey front section housing the auto-darkening filter, which appears purple. The Speedglas and 3M logos are visible on the side.

Setup

1. **Unpacking:** Carefully remove all components from the packaging. Inspect the helmet and ADF for any signs of damage. Do not use if damaged.
2. **Headgear Adjustment:**

- Adjust the ratchet headgear to fit snugly and comfortably on your head.
- Ensure the helmet sits evenly and provides adequate coverage for your face and neck.
- Adjust the pivot tension to allow for smooth up-and-down movement while securely holding the helmet in the desired position.

3. **ADF (Auto-Darkening Filter) Check:**

- Verify that the ADF is securely installed in the helmet.
- Before first use, expose the ADF to a light source to confirm it darkens and lightens correctly.

4. **Battery Installation/Check:**

- The helmet uses a Lithium battery. Ensure it is correctly installed according to the markings inside the battery compartment.
- Check the battery indicator (if present) to confirm sufficient power. Replace batteries as needed to ensure optimal performance.

Operating Instructions

The 9100 Series helmet features digital ADF controls for precise adjustments.

1. **Powering On/Off:** The ADF typically powers on automatically when exposed to light. Some models may have a manual power button. Refer to the specific ADF module for details.
2. **Shade Adjustment:**
 - Use the digital controls to select the appropriate shade level for your welding application. Available shades are 5, and 8 to 13.
 - Shade 5 is typically used for gas welding/cutting. Shades 8-13 are for various arc welding processes.
3. **Sensitivity Adjustment:**
 - Adjust the sensitivity setting to match the ambient light conditions and the welding process. Higher sensitivity is suitable for low-amp TIG welding or when the arc is partially obscured.
4. **Delay Function:**
 - The delay function allows you to set the time the ADF remains dark after the welding arc ceases. This prevents eye fatigue from bright afterglow and protects against adjacent arcs.
5. **Grind Mode Activation:**
 - Activate the external grind mode when performing grinding operations. This locks the ADF in the light state (Shade 3.0) to provide clear vision while protecting against grinding sparks and debris. Remember to deactivate grind mode before welding.
6. **Memory Modes:**
 - The helmet features two memory modes. Use these to save your preferred shade, sensitivity, and delay settings for different welding tasks, allowing for quick recall.

Maintenance

Regular maintenance ensures the longevity and optimal performance of your welding helmet.

- **Cleaning the Helmet Shell:** Clean the helmet shell with a mild soap and water solution. Avoid harsh chemicals or solvents that could damage the material. Wipe dry with a soft cloth.
- **Cleaning the ADF:**
 - Gently wipe the outer and inner protective plates with a soft, clean cloth.

- If necessary, use a lens cleaning solution specifically designed for plastic lenses. Do not use abrasive cleaners.
- Replace scratched or pitted protective plates immediately to maintain clear vision and protection.
- **Battery Replacement:** Replace the Lithium battery when the low battery indicator appears or if the ADF fails to darken properly. Refer to the ADF manual for specific battery replacement instructions.
- **Storage:** Store the helmet in a clean, dry place away from direct sunlight, extreme temperatures, and corrosive substances. Use the included carry bag for protection during transport and storage.

Troubleshooting

Problem	Possible Cause	Solution
ADF does not darken when welding.	Low battery, sensors blocked, grind mode active, incorrect sensitivity.	Replace battery, clean sensors, deactivate grind mode, adjust sensitivity.
Poor visibility through the ADF.	Scratched/dirty protective plates, dirty ADF lens.	Clean or replace protective plates, clean ADF lens.
Helmet feels uncomfortable or unstable.	Improper headgear adjustment.	Re-adjust headgear ratchet and pivot tension for a secure and comfortable fit.

If problems persist after attempting these solutions, contact 3M SPEEDGLAS customer support.

Specifications

Feature	Detail
Model Series	9100
Helmet Type	Auto-Darkening Welding Helmet
Lens Shade Range	5, 8 to 13
Light State	3.0
Viewing Area	4.20" x 2.80"
Material	Nylon
Grind Mode	Yes (External Activation)
Number of Arc Sensors	3
Switching Speed	1/10,000 sec.
TIG AMP Rating	1A
Power Source	Battery (Lithium)
Battery Life	1800 hr.
Headgear	Ratchet

Feature	Detail
ADF Controls	Digital
Standards	ANSI Z87.1-2010, EN379 Classification: 1/1/1/2

Warranty Information

3M SPEEDGLAS products are manufactured to high-quality standards. For specific warranty details regarding your 9100 Series Auto-Darkening Welding Helmet, please refer to the warranty card included with your product or visit the official 3M SPEEDGLAS website. Keep your proof of purchase for warranty claims.

Support and Contact Information

For technical assistance, replacement parts, or further inquiries, please contact 3M SPEEDGLAS customer support. You can typically find contact information on the 3M official website or through your local distributor.
Online Resources: Visit the official 3M website for product updates, FAQs, and additional support materials.

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