

# Leak Testing: AirHawk II<sup>®</sup> Air Mask

## MAINTENANCE AND REPAIR

For More Information, call 1-800-MSA-2222 or Visit Our Website at [www.MSAnet.com](http://www.MSAnet.com)



**MINE SAFETY APPLIANCES COMPANY**  
**PITTSBURGH, PENNSYLVANIA, U.S.A. 15230**

# LEAK TESTING

## Table of Contents

Cylinder and Valve .....	2
Cylinder .....	2
Cylinder Valve .....	2
Pressure Gauge .....	2
Handwheel and Safety Plug .....	3
Audi-Larm Audible Alarm .....	3
Relief Valve .....	3
Coupling Nut .....	3
Nipple .....	4

Alarm Adjusting Nut .....	4
High Pressure Hose .....	4
PR14 First Stage Regulator .....	4
Pressure Relief Valve .....	4
Seat .....	5
Regulator Cap .....	5
Intermediate Pressure and Harness Gauge Hoses .....	5
FireHawk Responder Second Stage Regulator .....	6

Perform leak testing when the air mask fails any inspection step, following disassembly, or as part of scheduled maintenance. The air mask must hold system pressure without leaks to provide adequate protection.

Leak testing quickly identifies components in need of repair or replacement. Use Snoop Leak Detector (P/N 600920).

**Note:** Do not use soapy water for leak testing.

### **⚠ WARNING**

**Do not tighten fittings or connectors when the system is pressurized. Close the cylinder valve. Be sure nothing blocks the regulator outlet. Relieve pressure from the system by slowly opening the bypass valve. Failure to follow this warning may cause fittings or connectors to fail, resulting in serious personal injury or death.**

## Cylinder

1. Apply leak test solution to the cylinder neck.

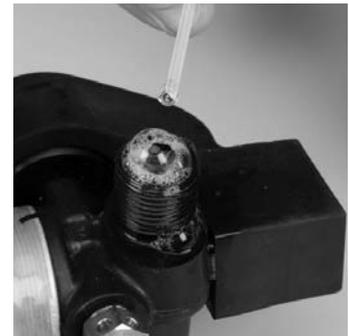


- a. If bubbles appear, replace the cylinder valve sealing o-ring and test again. (See **AirHawk II Cylinder and Valve Maintenance and Repair** for instructions.)

## AirHawk II Cylinder Valve

1. Turn the cylinder valve handwheel clockwise to ensure that the cylinder valve is completely closed.

2. Draw a bubble of leak test solution across the outlet port and the two bleed holes on the thread.



- a. If the bubble expands, there is an air leak through the valve. Repair or replace the valve and test again. (See **AirHawk II Cylinder Valve Maintenance and Repair** for instructions.)

## Pressure Gauge

1. Remove the gauge guard.



2. Apply leak test solution to the pressure gauge stem, cover, and bezel.



3. If bubbles appear, replace the pressure gauge and test again. (See **AirHawk II Cylinder and Valve Maintenance and Repair** for instructions.)

# LEAK TESTING

**Note:** On 4500 psig gauges, apply leak test solution to the vent plug or tape.

4. If bubbles appear, replace the pressure gauge and test again. (See **AirHawk II Cylinder and Valve Maintenance and Repair** for instructions.)

## Handwheel and Safety Plug

1. Apply leak test solution to the cylinder valve handwheel and safety plug.



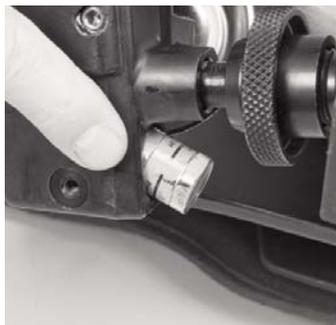
- a. If bubbles appear, repair or replace the cylinder valve and/or safety plug and test again. (See **AirHawk II Cylinder and Valve Maintenance and Repair** for instructions.)

## Audi-Larm Audible Alarm

1. Pressurize the system.
  - a. Connect the coupling nut to the cylinder and hand tighten.
  - b. Ensure that the Firehawk Second Stage regulator is off.
  - c. Ensure that the bypass is closed.
  - d. Slowly open the cylinder valve all the way.

## Relief Valve

1. If present, inspect the relief valve.



- a. Check for a loose or missing label.
- b. Check that the label is not perforated and that the relief valve ports are not visible.

**Note:** If the label is perforated or the relief valve ports are visible replace the relief valve and test for leaks.

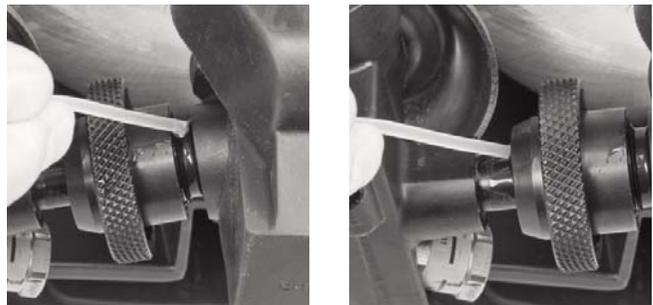
1. Apply leak test solution to relief valve body and thread.



- a. If bubbles appear, relieve system pressure by closing the cylinder valve and opening the bypass valve.
2. Replace the relief valve and test again. (See **AirHawk II Audi-Larm Audible Alarm Maintenance and Repair** for instructions.)

## Coupling Nut

1. Apply leak test solution to both sides of the coupling nut.



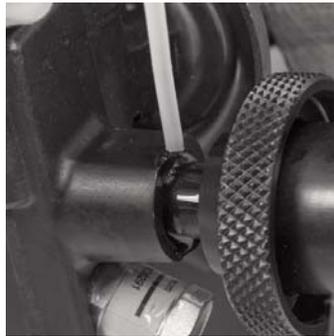
- a. If bubbles appear, close the cylinder valve and open the bypass valve to relieve pressure.
- b. Tighten the coupling nut and test again.

**Note:** If tightening the coupling nut doesn't correct the leak, replace the nipple o-ring and test again. (See **AirHawk II Audi-Larm Audible Alarm Maintenance and Repair** for instructions.)

# LEAK TESTING

## Nipple

1. Apply leak test solution to the pipe thread where the nipple enters the Audi-Larm body.



- a. If bubbles appear, replace the nipple and test again. (See **AirHawk II Audi-Larm Audible Alarm Maintenance and Repair** for instructions.)

## Alarm Adjusting Nut

1. Apply leak test solution to the adjusting nut.



- a. If bubbles appear, replace piston o-rings and test again. (See **AirHawk II Audi-Larm Audible Alarm Maintenance and Repair** for instructions.)

## High Pressure Hose

1. Apply leak test solution where the high pressure hose connects to the Audi-Larm body.
  - a. If bubbles appear, replace the high pressure hose and test again. (See **AirHawk II Audi-Larm Audible Alarm Maintenance and Repair** for instructions.)

## PR14 First Stage Regulator

**Note:** The FireHawk M7 PR14 First Stage Regulator cannot be leak tested while assembled to the mounting bracket because the seat is inaccessible. To avoid unnecessary disassembly eliminate all other leaks before testing the PR14 regulator.

1. If necessary, remove the cylinder and uninstall the regulator from the mounting bracket. (See **AirHawk II PR14 First Stage Regulator Maintenance and Repair** for instructions.)
2. Reinstall the cylinder and reconnect the Audi-Larm Audible Alarm.
3. Pressurize the system.

4. Apply leak test solution where the high pressure hose connects to the FireHawk M7 PR14 First Stage Regulator.



- a. If bubbles appear, replace the high pressure hose back-up ring and o-ring, and test again. If the leak persists, replace the high pressure hose.

## Pressure Relief Valve

1. Apply leak test solution to the pressure relief valve where it inserts into the regulator body.



- a. If bubbles appear, replace the relief valve and o-ring, P/Ns 10053426 and 63198. (See **AirHawk II PR14 First Stage Regulator Maintenance and Repair** for instructions.)

## Seat

1. Apply leak test solution to the seat.



- a. If bubbles appear, replace the seat o-rings and test again. (See **AirHawk II PR14 First Stage Regulator Maintenance and Repair** for instructions.)

# LEAK TESTING

## Regulator Cap

1. Apply leak test solution to the joint between the body and the regulator cap.



- a. If bubbles appear, replace the:
  - Regulator cap o-ring
  - Piston o-rings
  - Seal Ring

## Intermediate Pressure and Harness Gauge Hoses

1. Apply leak test solution to the connections between the intermediate pressure and harness gauge hoses and the PR14 First Stage Regulator block.



- a. If bubbles appear, replace the back-up ring and o-ring as needed, P/Ns 63198 and 633553 and test again. (See **AirHawk II Carrier and Harness Assembly Maintenance and Repair/ Installing the Left Shoulder Strap** for instructions.)
2. Apply leak test solution to the connection between the intermediate pressure hose and ExtendAire manifold, threaded connection or quick-connect fitting.
    - a. If bubbles appear, replace the back-up ring and o-ring as needed, P/Ns 63198 and 633553 and test again.