Miners must visually inspect their assigned SCSRs at the beginning of each shift before carrying them at the work site. Only CSE-trained individuals may perform the full 90-day inspection and approve SCSRs for use.

**KEY**

- **A DANGER** indicates a hazardous situation that, if not avoided, will result in death or serious injury.
- **A WARNING** indicates a hazardous situation that, if not avoided, could result in death or serious injury.
- **A MISTAKE** indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Even the most rugged and well-designed safety device can be damaged in the harsh environment of a mine. That’s why miners—and mine operators—know that it’s essential to make sure every piece of escape breathing apparatus is in good condition before it’s needed. Careful daily and 90-day SCSR inspections help uncover problems early, so that miners can rely on gear that must be ready in an emergency.
When Is Your SCSR OK?

Each SCSR is a valuable asset. Taking a unit out of service is a serious step. But exactly when is an SCSR acceptable for use at the work site, and when should you dispose of it or return it to CSE?

There’s no need for guesswork. On the following pages you’ll find guidelines for assessing the condition of an SCSR during both daily and 90-day inspections.

Never use an SCSR that has failed inspection, or has been removed from service, to train miners. CSE has developed a family of training products that safely simulate the SCSR experience. To find out more about CSE training devices, call 800.245.2224, or visit csecorporation.com.

SCSR INSPECTORS

Take the SCSR out of service immediately if you see any of the conditions shown in Checking for External Damage, on Pages 6–11.

TRAI NERS

Never use an SCSR as a training device if it has failed inspection, or has been removed from service. A miner who uses a damaged unit may incur serious bodily harm.

MINERS

Never attempt to use a damaged SCSR, or one that does not pass inspection, or that has been taken out of service.

The SCSR is a one-time-use device. Once the unit is opened, consider it spent. Return it to your foreman for disposal.

Keep the SCSR and its pouch clean enough for easy inspection. But never immerse an SCSR in water, or pressure wash it, or clean it with petroleum-based solvents.

Important information for TRAINERS SCSR INSPECTORS

By the time an emergency happens, it’s too late to wonder if your SCSR is usable. Make sure your SCSR will work when you need it by inspecting it before every shift.

Whose Job Is It? Whether you’re a miner, a foreman, or anyone else who works underground, you’re in the best position to check out the equipment you depend on.

What You’ll Need

▸ The SCSR you carry every day
▸ Your CSE SCSR pouch

Starting with the Pouch

Start by taking your SCSR from its pouch, so you can see it on all sides. Make sure the pouch holds the SCSR loosely, so you can get it out when you need it. Always carry your SCSR in the CSE pouch. Replace the pouch if it’s damaged, or if your SCSR doesn’t come out easily.

Cleanup

It’s easier to spot damage — and read the user instructions label — on a clean SCSR. So keep your SCSR clean enough to inspect it. But never immerse it in water, and never pressure-wash it or clean it with petroleum-based solvents. Make sure all three indicator windows are clear of grime.

Important information for MINERS

The buddy system helps keep every miner safe. If you see a problem with another miner’s gear, tell him — and let him know that it’s OK to return the favor.

TIP

The buddy system helps keep every miner safe. If you see a problem with another miner’s gear, tell him — and let him know that it’s OK to return the favor.

Daily Visual Inspection
Checking Indicators
Moisture and heat will damage the internal components and chemicals that produce oxygen. Your SCSR has three indicator windows that show you whether it has been exposed to too much moisture or heat.

That can happen if the SCSR is left in a hot vehicle, on a power source, close to any heat source, or in any hot area — or if it’s been under water, or hosed off, or has had its seals broken.

Checking Age
The date your device was made (MFG date) is marked on its stainless-steel security band. (Model SRLD is also marked on the black case, near the security band.)

**Model SRLD (black case)**

*If the top or bottom moisture indicator turns from half-blue to all-blue, return it and get a replacement.*
*If the temperature indicator shows red, return it and get a replacement.*

**Model SR-100 (orange case)**

*If the top or bottom moisture indicator shows white or pink, return it and get a replacement.*
*If the temperature indicator shows red, return it and get a replacement.*

When Colors Change on the Job
An SCSR will give the user some protection after an indicator has changed color. If an indicator changes during your shift, return the unit at the end of the shift and get a replacement.

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## Important Information for Trainees

### Training SCSR Inspectors

- **Black Case**
  - SRLDs carried on the job: More than 5 years old? Remove from service.
  - MFG DATE + 5

- **Orange Case**
  - All SR-100s: More than 10 years old? Remove from service.
  - MFG DATE + 10
Checking for External Damage
Your SCSR is designed for the hazards of the mining environment, but it’s not indestructible. Don’t take chances — see the Visual Damage Evaluation Guide (right) for common signs that you should turn your SCSR in for a replacement.

Checking the Security Band
Surrounding your SCSR is a stainless steel security band designed to hold the top and bottom covers tightly in position. Inspect the security band on all sides to make sure it’s not bent, broken, loose, or displaced.

If the steel security band is damaged in any way, return the SCSR and get a replacement.

To open your SCSR, you will pull the fabric loop on top of the unit. Ordinarily, the loop is held flat by a small steel clip, so it can’t be pulled accidentally. Inspect the loop and clip to make sure the clip holds the loop flat.

If the fabric loop or its clip are damaged in any way, return the SCSR and get a replacement.

A small copper security seal wraps around the center of the security band on top of the unit. Inspect the seal for damage.

If the copper security seal is broken or damaged in any way, return the SCSR and get a replacement.

Accidental Opening
An accidentally opened SCSR can fail when you need it, even if you have not removed the covers or pulled the starter tag. Return it and get a replacement.

Other Damage on the Job
An SCSR that has been damaged, accidentally opened, immersed in water, or in some other way made unusable during your shift will give the user no protection. Replace it immediately. Don’t wait for the end of the shift.

If You’re Not Sure Your SCSR is Safe
Don’t take chances. If you’re not sure your SCSR is safe to carry, ask your foreman before your shift begins.
How to Read the SR-100 Temperature Indicator

Inside the temperature indicator is a small temperature-sensitive dye pack covered by a layer of white fiber.

- If an SR-100 is exposed to temperatures higher than 130° F, the dye pack will melt and stain the white fiber layer bright red. If the indicator shows all or partly bright red, the SCSR fails inspection. Return it and get a replacement.
- Under safe, normal working temperatures, the unmelted dye pack may be faintly visible through the white fiber layer. If the indicator is all white, or shows a dark or pink shadow, circle, or pattern, your SCSR is still OK. It will pass a daily inspection.

Good. A temperature indicator that shows any of these colors, shadows, circles, or patterns tells you the SCSR has not been exposed to damaging heat. It will pass a daily inspection.

Bad. A temperature indicator that shows any of these bright red indications tells you the SCSR may have been exposed to damaging heat. Return it and get a replacement.

Acceptable Damage

Good. With minor wear and tear, as shown in these examples, your SCSR is still OK. It will pass a daily inspection.
Unacceptable Damage
Bad. With damage as shown in these examples, your SCSR may fail when you need it. It will not pass a daily inspection. Return it and get a replacement.

TIP
You can use these photos to evaluate both of the CSE SCSR models you might see on the job.
Important information for 90-day Full Inspection

Mine operators must fully inspect every self-contained self-rescuer four times a year. It’s the law.

One part of the job is to repeat the visual inspection that each miner makes before every shift. But even a careful visual inspection can’t always tell you if age, physical impact, or other factors have damaged the chemical bed that supplies an SCSR user with oxygen. Testing each SCSR with the CSE acoustic solids movement detector (ASMD) every 90 days is the only way to field-check the condition of the chemical bed.

Whose Job Is It?
If you’re a trainer, safety officer, or foreman, you may be responsible for making 90-day inspections. Learn to do it right. Your crews are depending on you. While miners are required to make visual inspections daily, your full inspection can catch conditions that miners don’t—or can’t—notice.

In addition to inspecting SCSRs and testing them with the ASMD, you will also have to maintain the ASMD, and use the CSE Spot Checker to make sure it’s calibrated. Only trained individuals can approve SCSRs for service. Only CSE can calibrate the Spot Checker if it needs attention.

What You’ll Need
▸ Access to every SCSR that’s been worn on a miner’s belt, or carried or stored on mobile equipment
▸ Belt pouches for SCSRs that have been carried on miners’ belts
▸ An ASMD
▸ A CSE Spot Checker
▸ Fresh 9-volt batteries

Which SCSRs to Inspect
▸ All SCSRs — both those carried on the job and those in storage — must be visually inspected every 90 days.
▸ All SCSRs that have been worn on a miner’s belt, or carried or stored on mobile equipment — in other words, any SCSR that has been out of permanent stationary storage — must undergo the ASMD test every 90 days.
Starting with a Visual Inspection

1. Take the SCSR from its pouch, so you can see it on all sides. Make sure the pouch holds the SCSR loosely, so the user can get it out easily. Miners should use only the CSE pouch, which is specifically designed to hold the SCSR securely and conveniently. Replace the pouch if it’s damaged or if the SCSR doesn’t come out easily.

2. Examine the SCSR on all sides. If it has been carried on the job, wipe off grime with a damp rag. Make sure all three indicator windows are clean enough for inspection. But never immerse an SCSR in water. Never pressure-wash it or clean it with petroleum-based solvents.

3. Check for moisture or heat damage by looking at all three indicators. The indicators are important because moisture and heat will damage the components and chemicals that produce oxygen. That can happen if the SCSR is left in a hot vehicle, on a power source, close to any heat source or heater, or in any hot area — or if it’s been under water, or hosed off, or if its seals are broken.

   Model SRLD (black case)
   
   If the top or bottom moisture indicator turns from half-blue to all-blue, take it out of service.

   If the temperature indicator shows red, take it out of service.

   Model SR-100 (orange case)
   
   If the top or bottom moisture indicator shows white or pink, take it out of service.

   If the temperature indicator shows red, take it out of service.

4. Check the date of manufacture marked on the stainless-steel security band. (Model SRLD is also marked on the black case, near the security band.)

   Model SRLD (black case)
   
   If the SCSR has been carried on the job and is more than five years old, take it out of service.

   If the SCSR has been in storage and is more than ten years old, take it out of service.

   Model SR-100 (orange case)
   
   If the SCSR is more than ten years old, take it out of service.

5. Check for external damage. If the SCSR has dented covers, loose or bent security bands, loose or damaged rubber seals, a cracked or punctured dust shield, or loose or missing parts, dispose of it immediately. We recommend that you return all SCSRs that you remove from service to CSE. Contact your local CSE representative for assistance.

   See Pages 3–11 for detailed visual inspection instructions and photos of common damage conditions.

Once your visual inspection has identified the obviously damaged SCSRs, you’ll need to perform the ASMD swing test on the others.

How the ASMD Works
Normal wear and tear can cause changes in the SCSR chemical bed that can reduce its ability to produce oxygen. The ASMD lets you detect chemical-bed changes without opening the SCSR. When you swing the SCSR, the ASMD attached to it analyzes the sound of slight shifting in the chemical granules. The ASMD flashes a red Failure light when it detects an abnormal sound level.

Spot Checking the ASMD

1. Spot check the ASMD’s calibration at the start of every day of SCSR testing. The calibration spot check is a simple procedure, but you should schedule enough time to do it carefully. See Page 19 for spot check instructions.

   2. Flip the ASMD Power switch to On.

      The Power light should glow green.

      If the Power light does not glow, replace the battery (see Replacing the ASMD Battery, Page 16).

Attaching the ASMD to the SCSR

1. Remove the SCSR from its pouch and set it on a flat, dry surface.

2. Slip the ASMD harness over the top of the SCSR. Pull it down snugly around the top cover and shell.

3. Buckle the ASMD firmly against the SCSR with the two Velcro straps. Pull the straps tightly enough to compress the foam layer of the ASMD’s rubber cone against the SCSR. Secure the straps with the Velcro tabs.

4. Confirm that the ASMD is operating normally by tapping the top cover of the SCSR with your finger. The red Failure light on top of the ASMD should flash with each tap.
5. If the Failure light does not flash when you tap the SCSR, replace the battery (see Replacing the ASMD Battery, Page 16). Recheck by tapping the SCSR again.

6. If the Failure light still does not flash after you have replaced the battery, contact your CSE representative to order a replacement ASMD.

Swing-testing the SCSR

1. With the ASMD attached, lock your elbow against your body, and swing the SCSR in a smooth, continuous rocking motion, from shoulder level to waist level and back. Repeat the motion four times in about four seconds. Do not shake the SCSR abruptly or violently; rough treatment can produce false readings.

2. Watch for the flashing red Failure light.

Evaluating the Results

No red light: SCSR passes. Return it to service.

Red light flashes once or twice during the first or second swing: SCSR passes. Return it to service.

Red light flashes or glows steadily throughout the test: SCSR fails. Take it out of service immediately.

Documenting Your Inspections

Document your inspections according to MSHA guidelines.

Disposing of SCSRs

We recommend that you return all SCSRs that you remove from service to CSE. Contact your local CSE representative for assistance.

Replacing the ASMD Battery

A field-replaceable 9-volt battery powers the ASMD. If the Power or Failure lights do not operate, replace the battery:

1. Remove the battery compartment cover from the base of the ASMD case.

2. Remove the battery, with its foam pad, from the compartment, and unsnap the connector.

3. Snap a fresh battery to the connector and replace the foam pad.

4. Holding the foam pad tightly around the battery, insert the fresh battery and replace the battery compartment cover.

If the Power or Failure lights still do not operate with a fresh battery, return the ASMD to CSE for repair.

TIP

Remove any rings or other jewelry that could rattle and produce a false reading.
ASMD Calibration Spot Check

The CSE Acoustic Solids Movement Detector (ASMD) is designed to warn you of changes in the SCSR chemical bed that reduce its ability to produce oxygen. Spot check the ASMD at the start of every day of SCSR testing to be sure it will give accurate readings.

Whose Job is It?
If you’re responsible for certifying the reliability of SCSRs, you may have to use and maintain ASMDs. You may also have to test them, to be sure they are calibrated, by using the CSE Spot Checker. Only trained individuals can approve SCSRs for use, or ASMDs for calibration.

How the Spot Checker Works
The Spot Checker duplicates the sound level that the ASMD is designed to detect. If the Spot Checker causes the ASMD’s red Failure light to glow, the ASMD’s sensitivity is set correctly.

Be Sure Your Spot Checker is Calibrated
First, check your Spot Checker’s calibration date sticker. The calibration sticker is current if it is no more than six months old.
If the sticker is missing or not current, don’t use the Spot Checker. Contact your CSE representative, or send the Spot Checker back to CSE for calibration.
If the sticker is current, power up the Spot Checker.
Powering Up the Spot Checker

1. Place the Spot Checker's power adapter into a 120-volt outlet.
2. Connect the power adapter cable to the socket in the base of the Spot Checker.
3. Flip the Power switch on the base of the Spot Checker to On.
   - The green Power light should glow.
   - If the Spot Checker's green Power light does not glow, check its power adapter connections. If the Spot Checker still does not respond, don't use it. Contact your CSE representative and ask for repairs or a replacement.
4. Use the Spot Checker to test your ASMD's calibration.

Testing ASMD Calibration

1. Flip the Power switches of the ASMD and the Spot Checker to On.
2. Join the two devices at their rubber cones, pressing them together firmly enough to compress the foam layer of the ASMD's cone.
   - The light on top of the ASMD should glow red.
   - If the ASMD light glows red, the ASMD is calibrated and ready for use.
   - If the ASMD light does not glow, replace the battery, or contact your CSE representative to order a replacement ASMD.

Now that you've confirmed that the ASMD is properly calibrated, you can use it to test your SCRs. See Pages 15–16 for testing instructions.

Maintenance

Keep the Spot Checker clean and dry.

Return the Spot Checker to CSE for calibration every six months.