Gear Check: How To

(*updated 14 April 2026* - red text indicates updated info since previous version)

- **Tech's Gear Check Process Infographic**
- **Gear Check Photo Sample**
- **2022 Gear Check Video** with Warren Williams and Alex Julius ~1 hour
- **Get Ready for Gear Check** – ISA News (1 CEU available)
- **Tree Climbers' Guide: Climbing Equipment** Arborist News CEU (August 2025)
- Complete Inspections in a clean, well-lit area
- The inspections are primarily conducted on life support equipment using your senses: touch, sight, hearing, smell, but probably not taste
- Work in pairs; try working with someone who may be more experienced or has expertise in an area with which you are less familiar, using this as a learning opportunity.
- Knowing what the gear looks like, when it's new versus well used and potentially modified, is helpful. Questioning if something doesn't look right is okay!

Textiles typically have a 10-year shelf life

– Materials break down over time and are susceptible to damage from UV exposure. Make sure to check the manufacturer's guidance on material lifespan/shelf life.

- **Ropes**
  - Here are two great resources from Petzl and Samson for a quick reference on how to inspect ropes
    Petzl How To Inspect Your Rope - Petzl USA.pdf Samson_inspection-retirement-pocket-guide.pdf
  - Working load limit 23kN or greater, 5,000 or US 5,400lbs, depending on standard
  - Run the length of the rope through your hands, feeling for irregularities in the sheath/cover and core, and the overall condition of the rope.
  - You're looking and feeling for inconsistencies in texture, stiff sections, bumps/lumps, flat spots, excessive wear, or glazing.
  - Look for cuts, burns, frayed strands, fuzzing, discoloration, and signs of contamination from oil, gas, or other contaminants (does it smell?).
    - Investigate any sections of puffs, cut strands,
    - Look for rope memory. If a rope is maintaining a certain shape from holding a certain position for an extended period, it may be time to retire
  - Check splices and sewn eyes for stitches and certified splicing techniques
  - Check the length of the rope by running out the full length. If it seems questionable, measure it for the minimum length
  - 10% Rule: If 10% of the rope is damaged in a 1" section, cut, repair, or replace it (depending on the location of damage)
- **Prusik/Hitch cords**
  - Similar to ropes, look for cuts, excessive wear, glazing, fuzzing, fraying, and contamination
  - The climber should know if it is compatible with the rope they are using
- **Webbing loops**
  - Similar to ropes, look for cuts, excessive wear, glazing, fuzzing, fraying, and contamination

  - Look at the stitching
    - Ensure intact stitches, look for fraying or tears
- **Lanyards** – refer to ropes and hardware sections
  - Hardware may include pulleys, mechanical devices
- **Harnesses**
  - Check for the Manufacture date
    - Make sure it is within the manufacturer's suggested range of use
    - Typically found somewhere along the belt
      - Look for tags. If there are no tags (or the tag is no longer readable), consider it expired
      - some Velcro between padding and lumbar/back of belt (Teufelberger & Edelrid)
      - Some tuck into small pockets close to buckles (Petzl)
  - Check the bridge for compliant termination knots and the preferred replacement bridge
    Inspect the bridge for damage (ropes)
  - Inspect buckles and perform function tests
  - Look at stitching and webbing
    - Ensure intact stitches, look for fraying, or tears
    - Inspect textile integrity
  - Check hardware for wear, sharp edges, and burs
    - Refer to the above information for hardware notes
    - Inspect any removable parts; the appropriate torque (Petzl Sequioa) is applied or single-use Nyloc nuts, bolts, or screws (Kinisi harness)

Hardware, including Mechanical Devices

  - No Notch Quickie 1
  - No alterations/modifications to equipment from the manufacturer's design
  - Signs of excessive wear, damage, and degradation, such as rust, corrosion, pitting, wear or grooved anchors, cracks, sharp edges, burrs, knicks, and abrasions
  - Deformity of parts, loose or wobbly bolts, misalignment,
  - Check spring actions; they should move freely and smoothly without delay
  - Check pins, connecting points, and alignments
  - Check recall sheets for any safety notices
- **Pulleys**
  - There should be an acceptable amount of space between the plates, and they should NOT rub or have an excessive gap between plates.
  - Check the cheek plates for excessive wear/damage
- **Carabiners/Snaps**
  - No Rock Exotica Orca carabiners
  - Reference Rule 2.3.9 - shall be a self-closing, self-locking type
  - Rule 2.3.11 – shall be self-closing and double autolocking and require a minimum of two separate operations to prepare the gate to open

- Visual Inspection
  - Body: look for cracks, sharp edges, excessive wear, corrosion, deformation, including the inside surfaces and spine
  - Gate: ensure the gate opens and closes quickly and easily, with no excessive side-to-side play
  - Locking mechanism: verify that the locking mechanism engages and disengages smoothly without gritty or rubbing noises
  - Rivets: check for loose, bent, or missing rivets
  - Rope passage: inspect the areas where rope passes through the carabiner for any snagging points, sharp edges, or excessive wear
- Functional Inspection
  - Gate: The gate should fully close when released without any sticking or resistance
  - Locking Mechanism: Make sure it engages and disengages smoothly
- Checking functionality - Here is a great resource from DMM
  - Open the gate fully and close 3 times
  - Open the gate halfway and close 3 times
  - Open the gate just past the nose and close 3 times
  - Go through actions to unlock, but don't open the gate, then close 3 times
- Additional Considerations
  - Impact Damage: If the carabiner has been dropped from a significant height, it should be retired, even if it appears intact
  - Age and Wear: Carabiners should be retired after a certain period of use. Refer to the manufacturer's user guide for lifespan guidance
  - Safety Standards: Carabiners should meet A/CE/EN standards

- **Handsaw**
  - per rule 2.3.35 - shall have teeth covered or removed
  - per rule 2.3.36 - shall be no longer than 58 cm (23 inches) or shorter than 33cm (13 inches) from the tip of the blade to the end of the handle in a straight line

PPE –

- **Footwear**
  - Should be ankle-high boots, intact, and in good working condition (protect from penetration)

- **Head Protection** (Helmet)
  - Reference Rule 2.3.15
  - Competitors, judges, technicians, and other approved individuals shall wear appropriate head protection at all times while inside the event safety perimeter. Hard hats and climbing-style helmets shall be manufactured to meet or exceed the minimum accepted industry safety standard and have been approved by the manufacturer for use in that application.
  - Competitors and technicians who are working aloft shall wear climbing-style helmets that meet the following criteria:

        - Must be suitable for arboricultural operations
        - Must be properly marked/labeled with **ANSI Z89.1, CSA Z94.1, EN397, or EN12492**
        - If the helmet is marked with **CE EN12492 only**, no single vent hole can be larger than 2 cm (0.79 in)
        - Must pass inspection
        - Molten metal splash, flame resistance, and electrical standard compliance are not a concern based on TCC site assessment expectations
    - Look for a manufacturer stamp or sticker with a date
    - Look for UV exposure, cracks and crazing, pitting and dings, or indicators of impact on the outside and inside
        - If you cannot visually inspect the helmet due to it being covered with stickers or custom paint, check with the head tech
        - In the image below, notice the discoloration (yellowing from UV exposure and age) of an older white hard hat (right) compared to a newly produced white hard hat. If they were not held side by side, it would be hard to tell the difference.

    - Inspect foam or webbing suspension systems on the interior for signs of impact, damage, or degradation
        - Check the stitching and the integrity of the webbing
        - Inspect the functionality of the buckle; some may be magnetic
- **Eye Protection**
    - Refer to Rule 2.3.14
    - Should be stamped with the respective standard on the frame or lens
        - look for Z87+ (US), Z94.3 (CAS), or EN166 (EU)
        - These can be glasses with regular plastic or mesh lenses
        - Face shields can be rated for use
- **Ear Protection**
    - Can be foam, silicone, or muffs – decibel rating needs to be appropriate for the task being completed

- Inspect for clean, fully intact shape (does not spring back to original form after a few seconds for foam earplugs)
- For muffs, check functionality by removing from the helmet, applying light pressure to compress together; they should come together without falling apart, which means they have a good seal and will seal around your ear

- **Leg Protection**
  - Chainsaw Protection
    - Check for Label – UL or CE class rating or ASTM
      - ASTM F1897, ASTM F1414, EN ISO 11393
      - Make sure it's legible

        The four classes and two types are as follows:
        - Class 0: 16 m/s
        - Class 1: 20 m/s
        - Class 2: 24 m/s
        - Class 3: 28 m/s
        - Type A: Protection to the front of the legs.
        - Type B: Chap design. Protection to the front of the legs
        - Type C: Full protection to the front and back of the legs
    - Chaps/Long Pants
      - Check the functionality of the buckles
      - Length to cover the ankles and the top of the boots
      - Inspect for contamination from oil and gas spills – do they smell like fuel or oil?
      - Look for cuts or picks, burns, or anything that compromises the integrity of the materials of the chaps