

Inspection and Retirement Quick Reference Checklist*

Any rope that has been in use for any period of time will show wear and tear. Some characteristics of a used rope will not reduce strength while others will. Below we have defined conditions that should be inspected for on a regular basis.

During your inspection, you must consider the following before deciding to repair (when possible) or retire your rope:

- > the length of the rope,
- > the time it has been in service,
- > the type of work it does,
- > where the damage is, and
- > the extent of the damage.

In general, it is recommended that you:

- > Repair the rope, when possible, if the damage is limited only to localized areas.
- > Retire the rope if the damage covers an extended area, or is localized damage that is significant and not repairable.

*REFERENCES Cordage Institute International, *International Guideline C12001-04, Fiber-Rope Inspection and Retirement Criteria: Guidelines to Enhance Durability and the Safer Use of Rope, 2004.*

Compression: REPAIR, not a permanent characteristic



- WHAT**
- > Visible sheen
 - > Stiffness reduced by flexing the rope
 - > Not to be confused with melting
 - > Often seen on winch drums

CAUSE > Fiber molding itself to the contact surface under a radial load

CORRECTIVE ACTION *Flex the rope to remove compression.*

Pulled Strand: REPAIR, not a permanent characteristic



- WHAT**
- > Strand pulled away from the rest of the rope
 - > Is not cut or otherwise damaged

CAUSE > Snagging on equipment or surfaces

CORRECTIVE ACTION *Work back into the rope.*

Twist: REPAIR, not a permanent characteristic



- WHAT**
- > The line of pics spiral around the circumference of the rope

CAUSE > Unaligned during rigging — connection induced

CORRECTIVE ACTION *Remove lower rigging connection and straighten rope construction, reconnect, and continue.*

Inspection Procedures

Open the rope and look for powdered fiber, which is one sign of internal abrasion.

To determine the extent of outer fiber damage from abrasion, a single yarn in all abraded areas should be examined. The diameter of the abraded yarn should then be compared to a portion of the same yarn or an adjacent yarn of the same type that has been protected by the strand crossover area and is free from abrasion damage.



Abrasion: REPAIR or RETIRE



- WHAT** > Broken filaments and yarns
- CAUSE**
- > Abrasion
 - > Sharp edges and surfaces
 - > Broken internal strands

CORRECTIVE ACTION *Consult abrasion images** and rate internal/external abrasion level of rope. Evaluate rope based on its most damaged section.*

- **Minimal strength loss (continue use)**
- **Significant strength loss (consult Samson)**
- **Severe strength loss (retire rope)**

**Refer to images on Inspection & Retirement Pocket Guide or Samson app



Inspection and Retirement Pocket Guide
Request a copy of this handy reference tool from your Samson representative.

Melted or Glazed Fiber: REPAIR or RETIRE



- WHAT**
- > Fused fibers
 - > Visibly charred and melted fibers, yarns, and/or strands
 - > Extreme stiffness
 - > Unchanged by flexing

CAUSE > Exposure to excessive heat, shock load, or a sustained high load

CORRECTIVE ACTION *If possible, remove affected section and re-splice with a standard end-for-end splice. If re-splicing is not possible, retire the rope.*

Discoloration: REPAIR or RETIRE



- WHAT**
- > Fused fibers
 - > Brittle fibers
 - > Stiffness

CAUSE > Chemical contamination

CORRECTIVE ACTION *If possible, remove affected section and re-splice with a standard end-for-end splice. If re-splicing is not possible, retire the rope.*

Inconsistent Diameter: REPAIR or RETIRE



- WHAT**
- > Flat areas
 - > Lumps and bumps

CAUSE

- > Broken internal strands
- > Shock loading

CORRECTIVE ACTION *If possible, remove affected section and re-splice with a standard end-for-end splice. If re-splicing is not possible, retire the rope.*

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