

# VISUAL ROPE INSPECTION

Examples included herein are the most common types of wear and damage to rope and are for illustration purposes only.

## SINGLE BRAID INSPECTION

### Cut Strands: REPAIR OR RETIRE

- WHAT** > 12-STRANDS: Two or more cut strands in proximity  
> 8-STRANDS/3-STRANDS: One or more cut strands

- CAUSE** > Abrasion  
> Sharp edges and surfaces

**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.*



### Pulled Strand: REPAIR

- 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.*



### 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.*



### Melted or Glazed: 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

- > Common causes of discoloration (grease, paint, etc.) are less serious than true 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.*



### Compression: REPAIR

- 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.*



## DOUBLE BRAID INSPECTION

### Cut Strands: REPAIR OR RETIRE

**DOUBLE BRAID:** *Repair or retire* **CORE-DEPENDENT:** *May not affect strength*

- WHAT** > Three or more cut strands in proximity

- CAUSE** > Abrasion  
> Sharp edges and surfaces

**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.*



### Pulled Strand: REPAIR

- WHAT** > Cover strand(s) 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.*



### Abrasion: REPAIR OR RETIRE

**DOUBLE BRAID:** *Repair or retire* **CORE-DEPENDENT:** *May not affect strength*

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

**CORRECTIVE ACTION**

**DOUBLE BRAID:** *If there is a 50% volume reduction of the cover yarns (or more), the rope should be retired.*

**CORE-DEPENDENT:** *If no damage to the core has occurred, the jacket can be repaired.*



### Melted or Glazed: 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** > Shock loading  
> Broken internal strands

**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.*

