



Standard Operating Procedure

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| Procedure Name: | Inspection of lifting equipment | | |
| Author: | Steve Smallman | | |
| Approved By: | Albie Wheeler | | |
| Version | 1.01 | With Effect from | 1/1/12 |
| Review Date | 1/1/13 | Document Number | SOP 10 |
| Risk Assessment | Name | NA | |
| | Date | 6/8/12 | |

1. Aim of procedure

To identify and formalise control processes involved in the inspection and tagging of lifting equipment.

2. Scope of application

This procedure applies to all Wheeler Cranes personnel involved in the use of lifting equipment at any location at any time.

3. References

AS 2550.5

AS 4497.2 Care and use of round slings

AS 1353.2 Care and use of flat slings

AS 2321 Short link chain for lifting

AS 3775.2 Care and use of chain slings Grade T


AS 1438.2 Care and Use of wire-coil flat slings

AS 1666.2 Wire-Rope slings – Care & use

AS 2741 Shackles

AS 2089 Sheave blocks for lifting purposes

AS 3776 Lifting components for Grade T Chain Slings

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4. Pre-requisites

Dogmen undertaking this work must hold a National Certificate of Competency/High Risk Work Licence as a dogman.

Inspections are to take place in a clean, dry well lit area, preferably with a cleared bench area to enable slings to be laid out for inspection.

Persons undertaking an inspection are to have adequate near and middle vision, corrected vision is suitable so long as corrective lenses as prescribed are worn.

Persons undertaking annual external certification of lifting equipment on behalf of Wheeler Cranes are to hold appropriate qualifications and certification to perform the testing undertaken.

5. Procedure

Sling failure is one of the high risk factors for all work in the mobile crane industry. Accordingly, inspection and certification of slings is a high priority for the management of safety in all lifting work. Slings must be in good condition and in a fit and proper state for use. To determine their state, the Australian Standards require a competent person to examine the sling.

A competent person is defined in the various Australian Standards as “a person having practical and theoretical knowledge and relevant experience, sufficient to enable that person to detect and evaluate any defects and any weaknesses that may affect the intended performance of the equipment.” Workcover NSW states :


Dogging (DG)

Consists of the application of slinging techniques to move a load (including the selection and inspection of lifting gear) and/or the directing of a crane/hoist operator in the movement of a load when the load is out of the view of the crane/hoist operator

AS 2550.5 at Clause 8.3.2 state that all lifting equipment will be inspected immediately prior to use.

The various AS for each type of sling (generally at Clause 9) lists the required inspection regime being:

- Before each use by the user of the sling
- Quarterly inspection by a competent person
- Annual proof testing for some equipment

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At Wheeler Cranes we require our slings to be inspected:

- Before each use by the user
- Monthly by a competent person
- Annually by an independent third party

We will retain records of inspections, including date and outcome of monthly inspections and the identity of the inspecting staff member.

We will indicate the last date of inspection by affixing a coloured cable tie to each item of lifting equipment in accordance with the following chart:

| | | | | | |
|---------|----------|-----------|---------|----------|----------|
| January | February | March | April | May | June |
| July | August | September | October | November | December |
| Red | Blue | Orange | Green | White | Yellow |

Personnel will not use an item of equipment that does not have the current tag colour affixed. During the course of the month, tags may be replaced by a competent person should they become dislodged.

We will also retain records of the results of our annual third party inspections. Inspection records are to be available for client inspection.

5.1. Inspection to be carried out by

Before use inspections

Dogman assigned to the crane/Rigger assigned to task.


Monthly Inspections

Monthly inspections will be carried out by nominated personnel who have undertaken the Wheeler Cranes internal training course for inspection.

These personnel will hold a current dogman or rigger.

5.2. Inspections to be carried out at

Ideally, the inspections will be carried out at the workshop, although the nature of our operations may mean that inspections are conducted on site. In either case, the inspection must be carried out in a well-lit location, free from excesses of temperature.

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5.3. Roundslings

Refer AS4497.2

A roundsling is a sling comprising a synthetic fibre core, covered by a woven outer cover. The “load-bearing core” of the sling takes the loading of the sling, whereas the outer cover protects the fibres of the load-bearing core.

Roundslings are highly flexible, conforming to the load and minimise point pressures on the load. They are light, soft to handle and easy to store. They are also highly susceptible to damage from heat, acidic or caustic chemicals, rot and prolonged exposure to sunlight.

Roundslings also have a significantly reduced WLL when wet and are susceptible to damage from sharp edges of the load and must be packed to ensure they are not damaged.


Withdraw from service when:

- Any of the discard criteria are observed.
- A dangerous condition of the sling is suspected.
- The label is illegible or missing
- The outer cover has been damaged
- The stitching has been damaged

On withdrawal, a competent person may inspect the sling and authorise its return to service.

Discard when:

- The label is missing and the sling cannot be positively identified
- Any of the load bearing fibres have been damaged.
- Damage to the cover indicates potential damage to the core and should be assessed.
- Fusing or glazing of fibres of the outer cover is present. This indicates the application of heat, possibly from a choke hitch or from external heat sources.
- Chemicals have caused any damage, or when a nylon sling has come into contact with acid or alkali solutions, or a polypropylene sling coming into contact with solvents (paints, thinners etc)
- There is any doubt as to the integrity of the sling

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5.4.Flatslings

Refer AS1353.2

A flatsling is a sling comprising flat woven synthetic fibre webbing which may incorporate end fittings complying with AS3585 or AS3776.

Flatslings are highly flexible, conforming to the load and minimise point pressures on the load. They are light, soft to handle and easy to store. They are also highly susceptible to damage from heat, acidic or caustic chemicals, rot, prolonged exposure to sunlight.

Flatslings also have a significantly reduced WLL when wet and are susceptible to damage from sharp edges of the load and must be packed to ensure they are not damaged.

Signs of damage include:

- External wear, either in general or localized, and indicated by fuzziness in the sling surface or breakage of fibres comprising the weave.
- Internal wear is the result of the abrasion of the sling fibres rubbing on each other, and is exacerbated by the presence of dirt, grime or sand. Any thickening of the sling may indicate internal wear.
- Cuts and contusions indicate local rupturing of the yarns
- Fusing or glazing of the surface indicate heat
- Chemical attack providing localised softness or weakening of the weave
- Deterioration of the stitching or damage to an eye, fitting or connection.

Withdraw from service when:

- Any of the discard criteria are observed.
- A dangerous condition of the sling is suspected.
- The label is illegible or missing
- The cover or sewn sleeve has been damaged
- The stitching has been damaged
- Any protective coating or end fitting has been damaged.

Discard when:

- The label is missing and the sling cannot be positively identified
- A sling is deemed to have lost 10% of its WLL (see AS 1313, 9.4.2 for testing method)
- Any of the load bearing fibres have been damaged. Damage to the cover indicates potential damage to the core and should be assessed.
- Fusing or glazing of fibres of the outer cover is present. This indicates the application of heat, possibly from a choke hitch or from external heat sources.



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- Chemicals have caused any damage, or when a nylon sling has come into contact with acid or alkali solutions, or a polypropylene sling coming into contact with solvents (paints, thinners etc)
- There is any doubt as to the integrity of the sling

5.5. Chains

Refer AS3775.2.

A chain is manufactured from hot rolled bar formed into short, uniform links of round bar formed into shape and welded to closure. The barrels of the links are the two parallel straight edges, including the welded joint. Chains are generally fitted with a hammerlock end to join them to rings or hooks. Multiple lengths of chain can be joined onto a single ring to form a multi-leg sling.

Chain slings are rugged, robust and strong, however they are heavy, bulky and can be damaging to soft or finished surfaces. The strength of a chain sling relies on spreading load equally across all the links of the sling. Point loading of slings, where slings are wrapped around sharp corners should be avoided by packing the sling.

When handling chain slings, gloves should be worn to protect hands, and mechanical lifting devices used to handle large or long chains.

Inspection of chains is performed link by link. Chains may need to be cleaned before inspection.


Withdraw from service when:

- The tag is illegible or missing, a new tag can be affixed after proof testing.
- Safety catches fitted are damaged or ineffective.
- Wear or excessive play in the load pin of hammerlocks
- Cuts, nicks gouges in links, bent links, heat damaged links. Shallow, rounded indentations may not be significant, however deep or sharp transvers nicks are not permitted.
- Bent or twisted hooks.

Slings withdrawn from service may be repaired in accordance with the standard, but may not return to service until proof tested and tagged in accordance with AS3775.1.

Discard when:

- The sling fails a proof test.
- Components are cracked, visibly distorted, severely corroded or have deposits that cannot be removed
- Minor nicks and gouges cannot be smoothed out or doing so would reduce any dimension by 10% or more

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When repaired, any chain sling MUST be proof tested, unless the repair is limited to “non-integral “ safety catches attached to sling hooks.

5.6. Lifting Components for chain slings

Refer AS3776

Lifting components include:

- Connectors and joiners (section 4)
- Links (section 5)
- Lifting Hooks with Latch (section 6)
- Other hooks (section 7)
- Self Locking hooks (section 8)

Repairable components are limited to non-integral safety catches on hooks. These items are readily repairable and the Rigging Supervisor generally maintains a stock of these items.

In general, lifting components should be removed from service when:

- They are corroded and do not open or close correctly
- They are bent or deformed
- The markings on the component are missing or illegible
- They are excessively worn

Hammerlocks must swivel freely, the load bearing pin must be secure and no excess wear in the spacer.

Hooks cannot have nicks, cuts or gouges and any removal of nicks, cuts or gouges must not reduce any dimension by more than 10%.



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5.7. Wire rope slings

Refer AS 1666.2.

A wire rope sling consists of multiple strands of steel wires joined through twisting, braiding or plaiting together to form a relatively flexible and rugged rope.

When handling steel wire rope slings, gloves should be worn to protect hands from protruding wires, and mechanical lifting devices used to handle large or long slings.

Withdraw from service when:

- The markings are illegible or missing.
- An excessive number of wires are broken.
- External wear has reduced significant number of wires in one strand in thickness
- The sling is deformed along its length due to over loading or being bent around sharp corners without packing .
- There is excessive corrosion
- Distortion or permanent set of the end fittings.

Discard when:

- The sling fails a proof test
- There is serious damage to one strand, or less serious damage to multiple strands
- There are signs of detrimental corrosion
- The sling is known to have been heavily overloaded, subject to a heavy impact or loaded in a kinked condition
- The markings are illegible or missing
- There is damage to the upper or lower terminal fittings



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5.8. Shackles

Refer AS 2741

Shackles, bow or D, must be discarded when the body or pin of the shackle is deformed, or suffers excessive wear (more than 10% of the thickness of the component), nicks, cuts or gouges.

The body and threads must be clean and free turning, without excessive corrosion and markings clearly legible.

5.9. Sheave Blocks

Refer AS2089

Withdraw from service when:

- Sheave Blocks are not clearly marked with their identification number and WLL.
- Sheaves are excessively worn (too large for rope)
- Sheave diameter is suitable for application (angles)
- Sheave surface is free from nicks, chips or gouges
- Hook latches are deformed, inoperative or ineffective
- Swivels are not securely fastened, free from defect and do not turn freely
- Side strap has fractures, distortion, stretching or corrosion
- Side plates are buckled or distorted
- Axle does not rotate freely or has excessive play
- The sheave block requires lubrication


5.10. Other Lifting equipment

Other lifting equipment will be inspected immediately prior to use and otherwise, in accordance with the manufacturer's directions.

5.11. Action on identification of suspect equipment

Persons identifying equipment as defective or suspect are to immediately tag the equipment with an out of service tag. This is a critical issue and must be done immediately on detection of the fault or suspect defect. **All work must cease until the Out of Service tag is applied to the item.**

If on site, or away from the depot, the item is to be placed in the Damaged Lifting Equipment Bag.

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5.12. Reporting and Recording procedures

Regardless of the inspection type any defective or suspect equipment must be reported to the Rigging Supervisor for final determination of disposal.

To report defective or suspect equipment, the person performing the “Before each use” or monthly “Periodic” inspection is to complete an Out of Service Equipment Report and hand the suspect equipment and the report to the Rigging Supervisor. If on a client site, the defective equipment is to be placed in the damaged lifting equipment bag,.

The Rigging Supervisor will record the form and outcome in the rigging equipment database.

5.13. Withdrawal from service processes

Any person may withdraw a sling from service. To do so;

- complete an out of service equipment form and
- attach an out of service tag to the sling.
- remove the sling from the toolbox and place it in the damaged lifting equipment bag.
- on return to depot, contact the rigging supervisor and hand the damaged lifting equipment bag to the rigging supervisor.
- the rigging supervisor will determine if the sling should be replaced, repaired or is fit for service.

Competent persons determining a sling to be unfit for use will complete a damaged lifting equipment form and hand to the rigging supervisor who will arrange replacement of the sling.

6. Approval



Albie Wheeler
 Managing Director
 13/9/12

