



OPERATION MANUAL

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Dogging and Rigging guide

Use this guide as a practical reference for dogging and rigging work.

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5.2.7 Swivels and sheave blocks

How to work safely with swivels, sheave blocks and snatch blocks.

Swivels and sheave blocks

The key Australian Standards for swivels and sheave blocks are:

- AS2089 Sheave blocks for lifting purposes.
- AS2318 Swivels for lifting applications.



Key Australian Standards for swivels and sheave blocks

Snatch blocks

A snatch block is used where you need to attach or access the wire rope along its length without having to pull or feed all the wire rope through from one end. It achieves this by the side plate opening from either a pivot or a hinged gate. This allows the block to open, rope to be inserted then closed and secured.



Snatch block

Snatch blocks should be inspected before use. The gate must be properly closed.

As the winch takes the weight, the sheave block will align in the direction of the winch. As snatch blocks stand up, the split pin must be facing down and must be spread.

Using snatch blocks with hooks

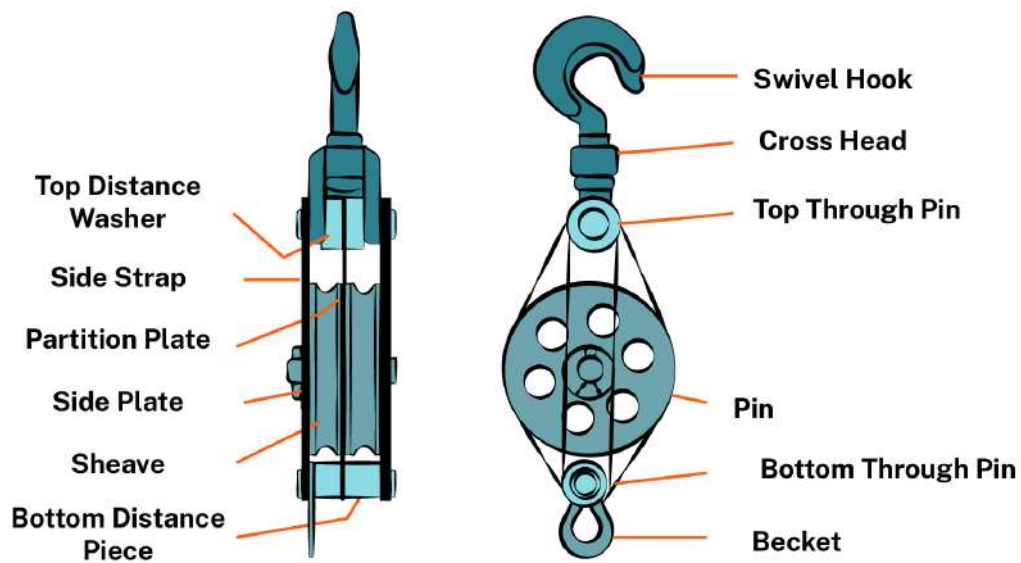
The eyebolt and shackle-type of block is preferable to the hook type. If the hook type is used it is important that the hook is placed into the sling with the hook facing down. If the hook faces up, it can drop out of the eye of the sling as the winch takes the strain. The hook must be properly moused to the sling.

Sheave blocks

Service and inspection

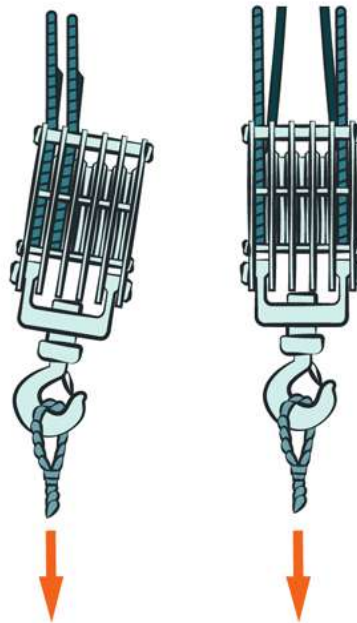
Sheave blocks should be serviced on a regular basis. They should be inspected and greased before each new set-up. When doing this, pay attention to the pin.

If sheaves are not properly greased, friction increases a lot through the system as the load is raised. This can overload the hoist rope at the winch.



Sheave block diagram

Make sure all safety pins, bolts and nuts are tight and secured. Hook blocks should be supported at the top to prevent the block from twisting. All blocks should be reeved up according to the manufacturer's guide lines.



Sheave failure due to sheave pattern

Twisting

Twisting may cause some of the risks with a wire rope.

Twisting causes the rope to:

- jam or ride on the rim of the sheave
- slip between the sheave and the cheek plate
- jam and destroy the rope.

Anchorage

The anchorage of the main line must be at the end termination (becket) located at bottom or base of the top block assembly.

If the anchorage point (becket) is defective this should be rectified before use.

Shackles

Do not secure the end to the upper eye or shackle of the top block. The rope may cut where it passes over the cheek plate.

The screw pins of "D" or bow shackles should be moused where used on standing rigging, and on running rigging where the pin can become unscrewed.

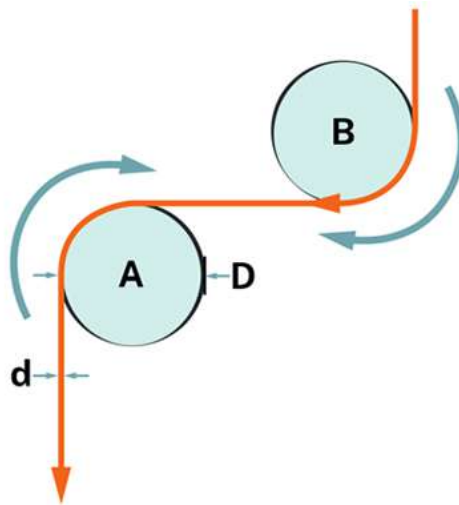
Fleeting

Head slings must not render or slip during fleeting operations.

Where any fleeting action takes place the load must be kept as low as possible to the ground or any supporting structure.

Do not stand in the line of pull from either set of blocks during fleeting.

Reverse bends



Reverse bending

Reverse bends cause much greater fatigue than if all bends were made in the one direction.

If a rope runs in one direction over one sheave and then in the opposite direction over another sheave, it will wear out and become damaged quickly.

As the rope passes over a sheave it is bent, and as it leaves the sheave it is straightened. These two distinct actions cause fatigue. This is made worse if the rope is bent and straightened in opposite directions again and again.

Purchase or tackle block?

Riggers must know the difference between wire rope purchase blocks and fibre rope tackle blocks.



Fibre rope snatch block



Fibre rope tackle block

A fibre rope may be used in a purchase block but a wire rope must not be used in a tackle block.

A fibre rope tackle block would be greatly overloaded if used for the WLL of a wire rope of the same size.

The differences between the two types of blocks are:

- the depth of the groove in a fibre rope tackle block should be not less than half the diameter of the rope used
- the depth of the groove in a wire rope purchase block must not be less than 1.5 times the diameter of the rope used
- the diameter of a fibre rope block is much less than that of a wire rope block for the same size
- rope fibre rope tackle blocks are normally not fitted with a bearing
- a wire rope purchase block is normally fitted with a bearing or bronze bush, as it is normally working at higher loads and often at high speed
- pins and beackets are heavier and stronger in wire rope blocks.