

Flyrail Training



Flyrail Training

Today's Objectives

To understand the safety precautions when working with a counter weight system

To understand the mechanical use and limitations of the counter weight system

To understand the procedures used to load/unload battens and arbors safely

General Info

Safety

Flyrail Area

Stay out from under loading floor when arbors are being loaded.

Keep others out from under the loading floor when arbors are being loaded.

Stage Area

Alert others of items moving over head, battens, props, and electrics.

Loading Floor

Remove unnecessary items from your pockets and belt.

Secure any needed tools to your body before going above the stage floor.

Never do anything you think is unsafe

Terms

Pin Rail

A rail in which belaying pins are set for tying fly lines

Belaying Pin

A straight pin that is inserted into the pin rail used to anchor ropes

Spot Line (Endless Line)

A line over a single or pair of loft blocks

Used to locate pick points/lines

Used for cable picks that are tied back to the pin rail

Brick

Steel weights used on the arbor to off set the weight on the batten

Full brick 42 lbs, Half brick 21 lbs

Pipe weight

The weight of the batten (pipe) that stays on the arbor usually painted white

Cue Light

Low wattage (usually colored) light bulbs inside wire cage connected to switches controlled by the stage manager to cue flyman

Operation, light "On" flyman stand-by, light goes "Off" flyman executes the move

Snatch Block

A pulley block with anchor hook and side gate that opens to allow line to be inserted, used to guide or change direction of a lifting line.

Knots

Clove Hitch

Mainly used to tie off to a batten

Half Hitch

Used after a clove hitch to provide extra security

Bowline

Used when a loop is needed

Bow

Used to tie a drop to a batten

Rolling Hitch

Used to secure purchase line to the rail holding the arbor from moving

Line Lock or Rope Buddy

Tool used to secure purchase line from moving by using the friction between the lines

PIN-RAIL TIE-OFF



Counterweight Systems

Single Purchase

A device for flying scenery by the use of weights, pulleys, blocks, ropes, and arbors

Operates by using the bricks to offset the weight of the scenery and allows it to fly.

Force must be exerted equal to the load to be held or raised

Batten moves the same distance and speed as the arbor

Double Purchase

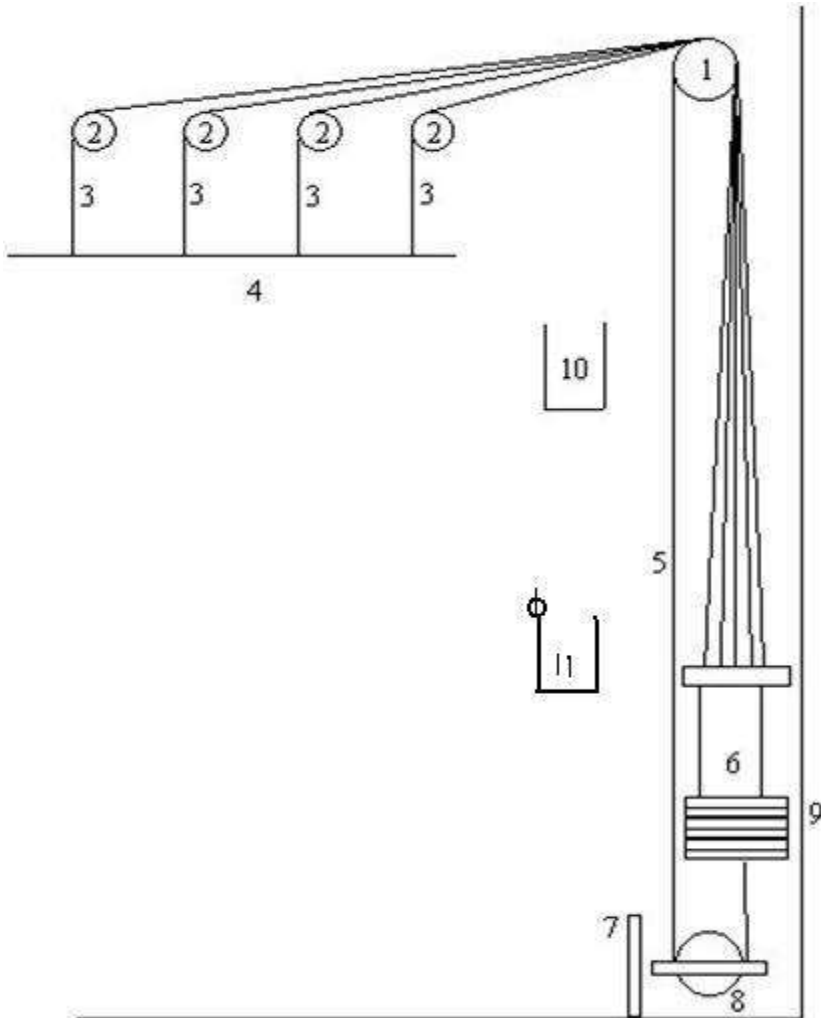
An arrangement of pulleys, and cables, used to reduce the travel of an arbor.

It requires twice the counter weight for a given load as a single purchase system

Batten travel is twice arbor travel

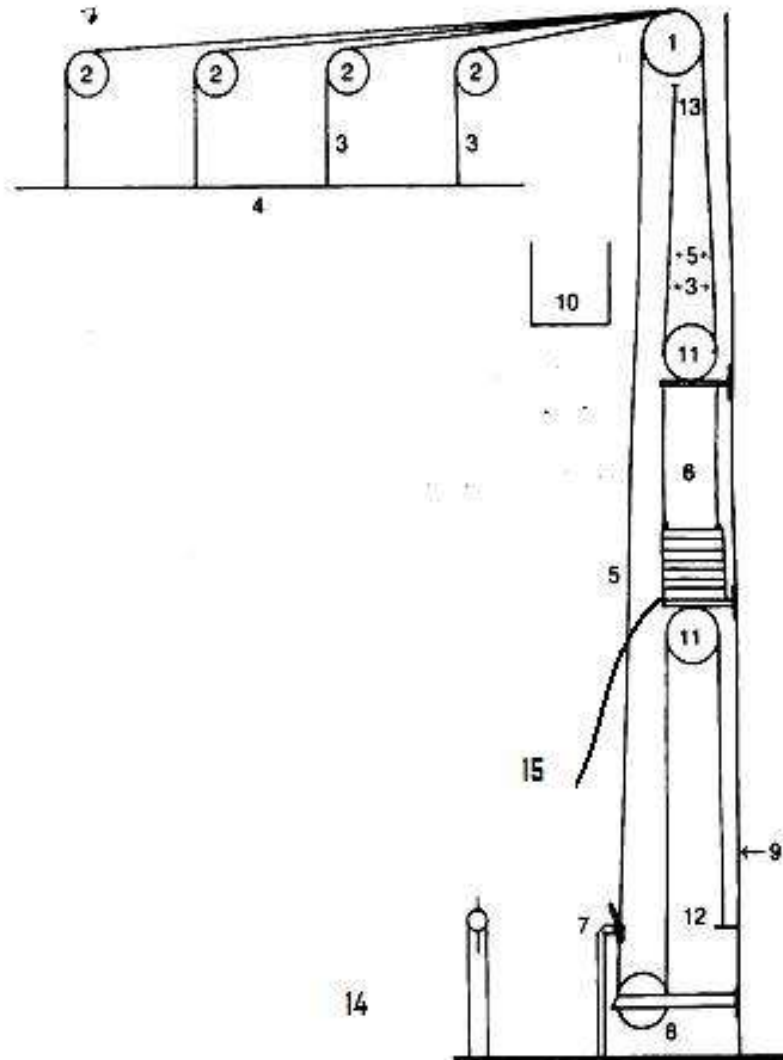
Batten speed is twice the speed of the purchase line

Single Purchase System



1. Head Block
2. Loft Blocks
3. Lift Line
4. Batten
5. Hand Line
6. Arbor
7. Lock Rail
8. Tension Block
9. T-Bar Guide Rail
10. Loading Bridge or Weight Rail
11. Gallery & Pin Rail

Double Purchase System



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6. Arbor
7. Lock Rail
8. Tension Block
9. T-Bar Guide Rail
10. Loading Bridge or Weight Rail
11. Arbor Blocks
12. Hand line tie-off
13. Hand & Lift line tie-off
14. Gallery & Pin Rail
15. Tag Line

Counterweight Operation

Keys to proper operation of a counterweighted system

- Keep the system in a balanced condition

- Always load the batten before the arbor

- Always unload the arbor before the batten

If the counterweight set can't be balanced

- Set the arbor slightly heavier so the batten won't accidentally descend.

Lowering the Batten

Identify the location of the arbor

Is it completely down in the resting position or some where in between?

Will opening the rope lock cause the arbor to come in?

Inform the stage that you are flying in the batten

Example “fifth electric coming in up stage”

Lift the rope lock safety ring over the handle and rest it on top of the binder

Squeeze both purchase lines together to prevent them from moving when the lock is opened

Open the rope lock, pull down on the purchase line closest to the rope lock in a hand over hand fashion maintaining control

Check the stage again to ensure people are aware of the object moving overhead and the area below the batten is clear

Call out again “fifth electric coming in up stage”

Be aware when the arbor is reaching the stop and do not slam it.

Secure the rope lock and place the locking ring over the handle

Loading the Arbor

Identify the total weight being added to the batten

Calculate the number of plates required to equal or be a little heavier than the batten

Call the required number of plates up to the loading bridge

Example “Load 12 on line 32”

Get conformation from loader of what you requested

Wait for the loader to call down and tell you they have completed loading the arbor

Example “12 plates on line 32”

Grasp both purchase lines, squeeze them together to secure the arbor before slowly opening the rope lock and check the balance of the system.

Request any necessary changes to the arbor weight to ensure balance and smooth operation.

Changes can be done at the lower gallery for working pieces

Progressive Loads

Some objects added to the batten do not show their total weight until they are completely in the air.

Examples “drapes, stacked flats, multiple set pieces”

To safely control the arbor in this case you will need to hold more weight than the rope lock is rated for (<50lbs)

Loads 50 to 300 lbs

Use the Rope Buddy to secure the purchase lines and lower the arbor as needed by slowly lifting the handle allowing the purchase lines to slide

Loads Over 300 lbs there are two methods

A block and fall can be used to hold up the arbor and lower the arbor as needed from the loading gallery

The capstan winch with a snatch block can be used to hold and control the descent of the arbor from the loading gallery

Raising the Batten

Inform the stage that you are flying out the batten

Example “fifth electric flying out up stage”

Lift the safety ring over the rope lock handle, place it on top of the binder

Squeeze both purchase lines together to prevent them from moving when the lock is opened.

Open the rope lock and pull down on the rear purchase line hand over hand in a controlled fashion.

Check the stage again to ensure people are aware the batten is flying out.

Be aware when the arbor is reaching the stop and do not slam it.

Secure the rope lock and place the locking ring over the handle

Preparation for the Show

Setting trim locations

Use high visibility tape on the purchase line to mark trim locations

Low trim position (Blue Tape)

High trim position (Red Tape)

Cues

Before show time

Review all cues with person making the calls

Run the set in and out to understand the required timing

Counting for time is helpful

Pay close attention when reaching the trim mark making sure pipes do not hit the floor

Use tape to mark the descriptions of each line set at the line lock

During the show use a squeeze clip to locate the next line set to move

Unloading the Batten

Inform the stage that you are flying in the batten

Example “fifth electric coming in up stage”

Lower the batten in completely

Call to the loading floor to remove all weight from the arbor down to the pipe weight

Example “strip line 32”

Wait for the loading floor to call down when they are complete

Inform the stage to begin removing the show items from the batten

When complete inform the stage that you are flying out the batten

Example “fifth electric flying out up stage”

Remove labels from the rail and trim marks from the purchase lines

Working on the Loading Floor

Tie-back Lines

Used to hold purchase lines out of the way while loading arbor

Spreader plates

Spreader plates are flat bars that ensure the arbor rods will not spread and allow the weights to topple out of the arbor

Spreader plates must be located between the counterweight every two feet or less (note sticker on arbor)

Stop collar

Stop collar with a red hand screw is provided on each rod above the top spreader plate to keep the counterweight in place during an accidental crash

Loading is always a two person job

Loading Floor



Pipe Weight



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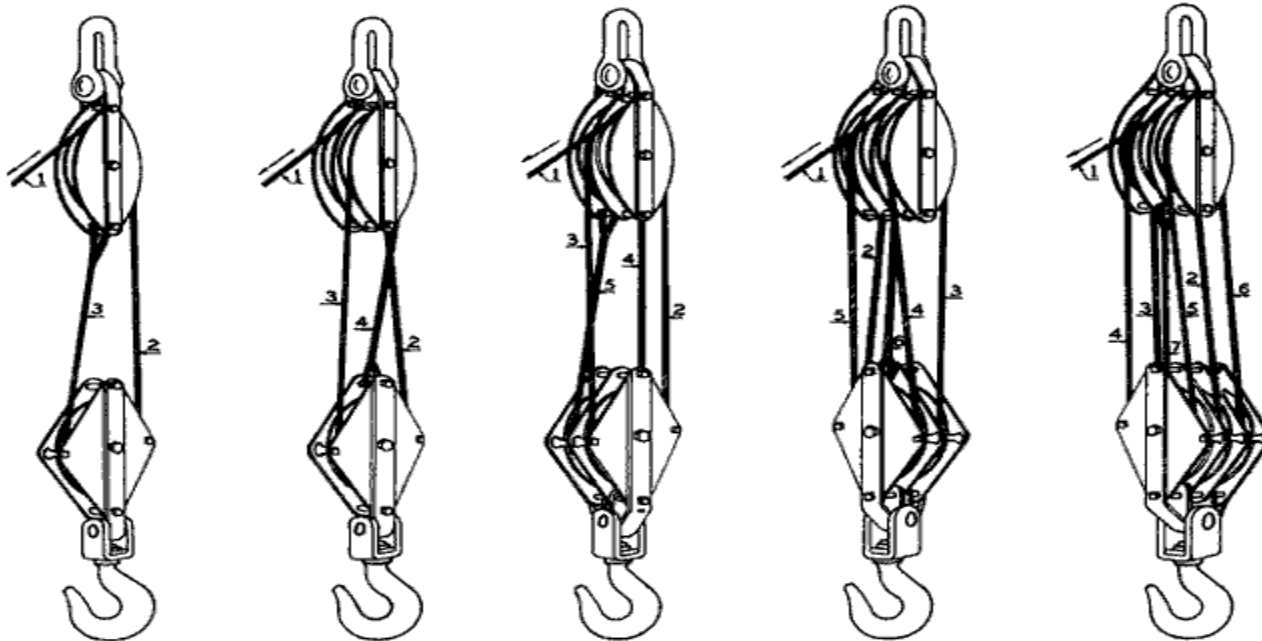
Block and fall

Provide a mechanical advantage when lifting loads

The block is a set of pulleys secured to a point.

The fall is a set of pulleys secured to the load.

They are connected by a single rope through their pulleys which when hauled raises the fall and load.



Theater Stage

