

## Rectangular Swingaway Inspection Procedure

This program was designed to establish a standard field procedure to check and inspect booms for squareness, sweep, twist, camber, flatness or convex / concave conditions.

This procedure pertains to Grove and GMK built booms. Fabricated trapezoidal booms, formed trapezoidal booms, rectangular booms, rectangular swingaways, triangular swingaways and AFrame jibs.

This boom inspection data form will be used to record all measurements taken while performing the inspection.

**Note: All calculations will be done by Grove Worldwide**

**Note:** Anytime you are using the gauge blocks, record the thickness of the block used in the appropriate space on the form. Always use gauge blocks large enough to ensure the string does not touch the boom section. **All check dimensions recorded will include the gauge block thickness.**

**Note:** All measurements are taken from the rear of the section to the front, with the exception of checking for a twist in an A-Frame jib or a swingaway. You must check A-Frame jibs and swingaways by leveling the front of the section and taking the check dimension at the rear. Because of the angle of inclination of the main chords, the front end is narrower than the width at the rear of the section.

### Tools Required

Quantity 1 - 4 Foot Level

Quantity 1 - Large Square ( 3' x 4' )

Quantity 2 - Small Squares ( 24" x 16" )

Quantity 2 - Vise Grip Clamps

Quantity 1 - 6" scale

Quantity 1 - 12' Tape Measure

Quantity 2 - Gauge Blocks or Rods ( Same Thickness )

Mason String

## Definitions

**Trapezoidal Boom** - A four sided boom with only 2 sides being parallel



**Rectangular Boom** - A four sided boom having edges, surfaces, or faces that are right angles



**GMK Style / Megaform** - A six sided boom made from two formed channels. The top half has 90° bends and the bottom half has multiple bends.



**A-Frane Jib** - A boom extension suspended by cables

**Swingaway** - A boom extension that is pinned directly to the main boom nose

**Sweep** - To curve to the right or left, a deviation from being parallel. Larger than the gauge block on one side and smaller than the gauge block on the other side.

**Camber** - To arch slightly, to curve upward or downward

**Squareness** - To test for a deviation from a right angle

**Twist** - To rotate while taking a curving path or direction

**Convex** - Arched up or bulging out condition

**Concave** - Arched inward or curving in condition

**O. D. Width** - Outside dimension measured from outside of left side plate to outside of right side plate

**O. D. Height** - Outside dimension measured from outside edge of top plate to outside edge of bottom plate

**Distortion** - To twist out of normal or original shape

**Maximum Deviation** - The difference between a fixed number ( gauge block ) and the check dimension

**Check Dimension** - The actual measurements taken at various places on boom

**Strut** - Tubing that is welded between main chords of A-Frame jibs

**Gauge Blocks** - Are blocks, being the same size, from which measurements are being taken

**Main Chord** - Main support tube that runs the full length of jibs and swingaways

**Lacing** - Tubing that is welded between the main chords of swingaways

## Serial Number and Part Number Locations On Booms, Swingaways and Jib Booms

Machine component serial numbers and part numbers are required for us to supply repair procedures for major weldments.

Below a list of major components with serial number locations.

**Note:** Part number is on opposite side of the serial number.

The numbers are steel stamped into the major components in the approximate locations shown.

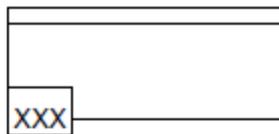


Fig. 1  
Rectangular Boom  
Left Forward  
Bottom Corner

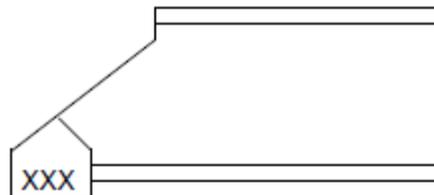


Fig. 2  
Trapezoidal Boom  
Bottom Left  
Forward Bottom Corner

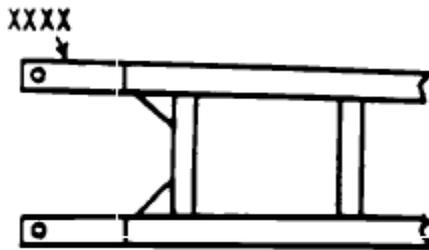


Fig. 3  
A-Frame Jib

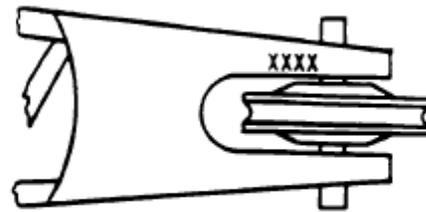


Fig. 4  
Lattice Swingaways  
and Fixed Lattice  
Boom Extensions

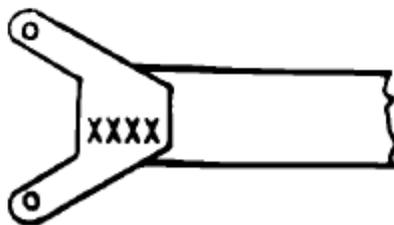


Fig. 6  
Stevedore, IND 24, AP 308 and AP 206  
Jib-Top Side of Trunnion Block

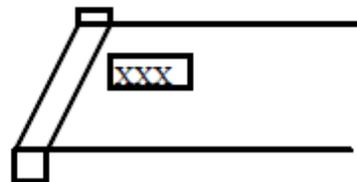
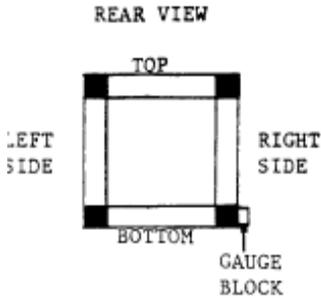


Fig. 5  
GMK Style / Megaform

## Rectangular Swingaway Sweep

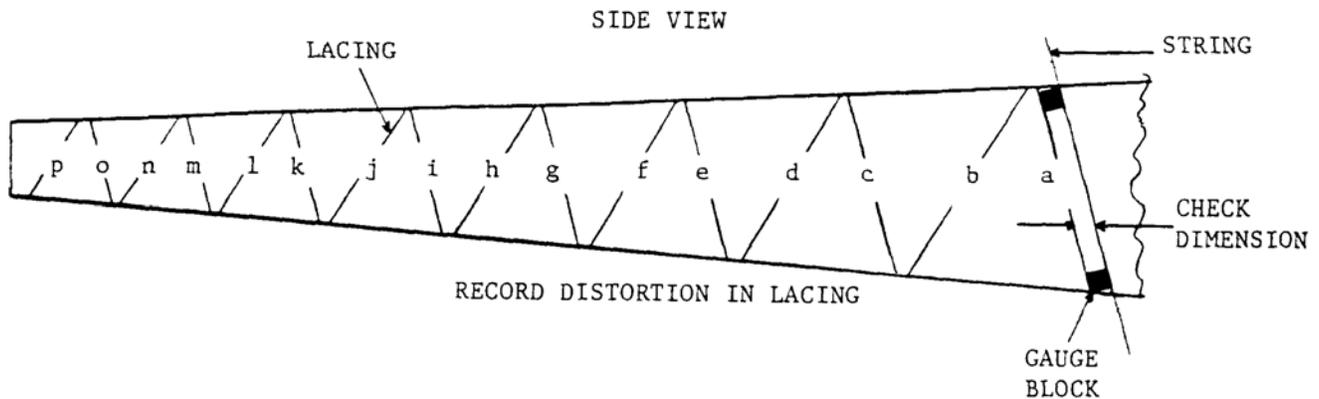
Chkd. By \_\_\_\_\_ Model \_\_\_\_\_  
 Date \_\_\_\_\_ Serial # \_\_\_\_\_  
 Distributor \_\_\_\_\_  
 Record Part Number of Swingaway \_\_\_\_\_  
 Record Serial Number of Swingaway \_\_\_\_\_



1. Checking all lacing, one side at a time, place the gauge blocks on the lacing close to the main chord.
2. Pull the string tightly over the blocks.
3. Measure the distance between string and lacing at various points between gauge blocks.
4. Find maximum check dimensions and record on this form.
5. Repeat procedure for all sides.
6. Record thickness of gauge blocks.

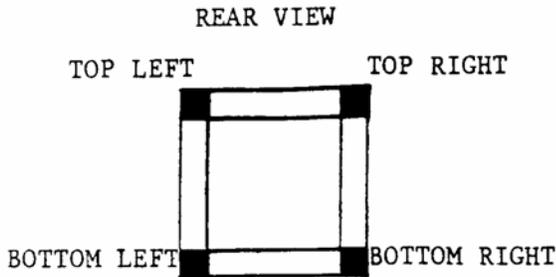
Record Thickness Of Gauge Blocks \_\_\_\_\_

	<u>Right Side</u>	<u>Left Side</u>	<u>Top</u>	<u>Bottom</u>
a.	_____	_____	_____	_____
b.	_____	_____	_____	_____
c.	_____	_____	_____	_____
d.	_____	_____	_____	_____
e.	_____	_____	_____	_____
f.	_____	_____	_____	_____
g.	_____	_____	_____	_____
h.	_____	_____	_____	_____
i.	_____	_____	_____	_____
j.	_____	_____	_____	_____
k.	_____	_____	_____	_____
l.	_____	_____	_____	_____
m.	_____	_____	_____	_____
n.	_____	_____	_____	_____
o.	_____	_____	_____	_____
p.	_____	_____	_____	_____

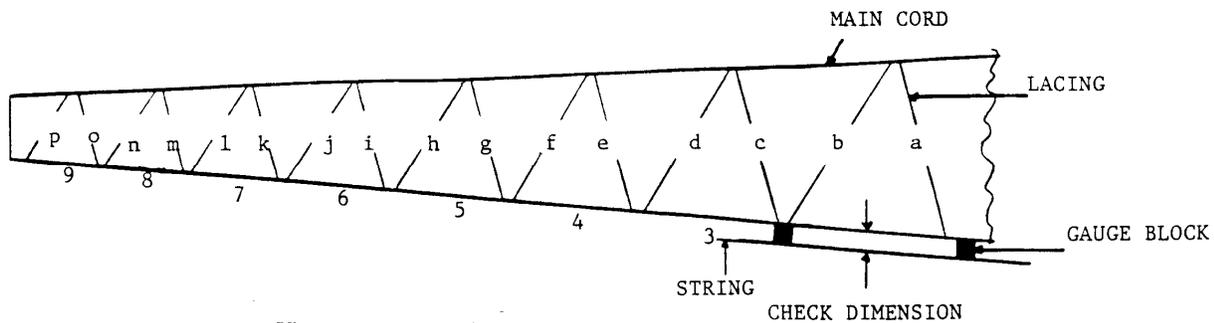


## Rectangular Swingaway Distortion of Main Chords

Chkd. By \_\_\_\_\_ Model \_\_\_\_\_  
 Date \_\_\_\_\_ Serial # \_\_\_\_\_  
 Distributor \_\_\_\_\_  
 Record Part Number of Swingaway \_\_\_\_\_  
 Record Serial Number of Swingaway \_\_\_\_\_



Record Thickness of Gauge Blocks \_\_\_\_\_



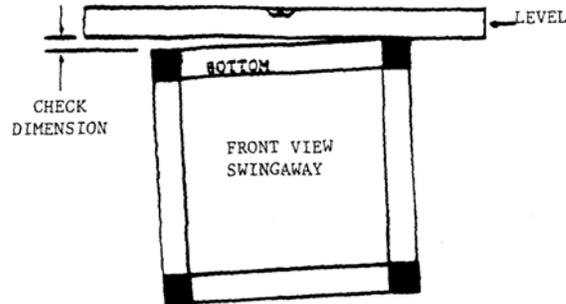
1. Place gauge blocks along outside of main chord where lacing is welded to main chord.
2. Pull string tightly across gauge blocks.
3. Measure distance between string and main chord at various points between blocks to find maximum check dimension.
4. Record check dimension on this form.
5. Repeat this procedure for all main chord sections between lacing on all 4 sides.
6. Record thickness of gauge blocks on this form.

### Record Local Distortion of Main Chords

	Top R/side	Top L/side	Bottom R/side	Bottom L/side
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
9.	_____	_____	_____	_____

## Rectangular Swingaway Twist

Chkd. By \_\_\_\_\_ Model \_\_\_\_\_  
Date \_\_\_\_\_ Serial # \_\_\_\_\_  
Distributor \_\_\_\_\_  
Record Part Number of Swingaway \_\_\_\_\_  
Record Serial Number of Swingaway \_\_\_\_\_



Record Check Dimension as Twist \_\_\_\_\_

1. Place the swingaway with the bottom up.
2. Place a 4' level across the bottom chords at the front of the swingaway.
3. Once the front is level, take the 4' level to the rear of the swingaway and place it across the bottom chords.
4. Lift either end of the level one way or the other until the bubble is level.
5. Measure the distance between the level and the bottom chord and record this check dimension as twist on this form.