Structual Inspection Procedure – A-Frame Jib

A-Frame Jib 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 A-Frame jibs. This boom inspection data form will be used to record all measurements taken while performing the inspection.

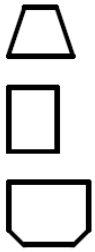
Note: All calculations will be done by Manitowoc Product Support

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 then 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.

We have attached 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 typical locations shown.

Fig. 1
Rectangular Boom
Left Forward

Fig. 2
Bottom Corner Trapezoidal Boom
Bottom Left
Forward Bottom Corner

Fig. 3
A-Frame Jib

Fig. 4
Lattice Swingaways and Fixed Lattice
Boom Extensions

Fig. 5
Stevedore, IND 24, AP 308 and AP 206

Fig. 6
GMK Style / Megaform
Jib-Top Side of Trunnion Block

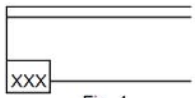


Fig. 1
Rectangular Boom
Left Forward
Bottom Corner

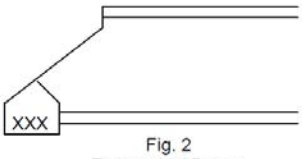


Fig. 2
Trapezoidal Boom
Bottom Left
Forward Bottom Corner

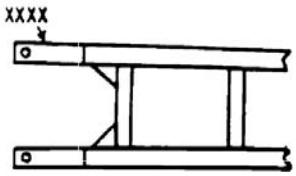


Fig. 3
A-Frame Jib

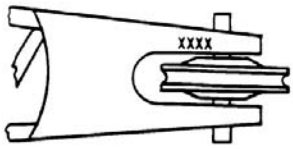


Fig. 4
Lattice Swingaways
and Fixed Lattice
Boom Extensions

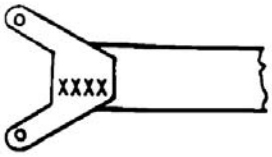


Fig. 6
Stevedore, IND 24, AP 308 and AP 206
Jib-Top Side of Trunnion Block

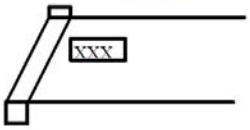
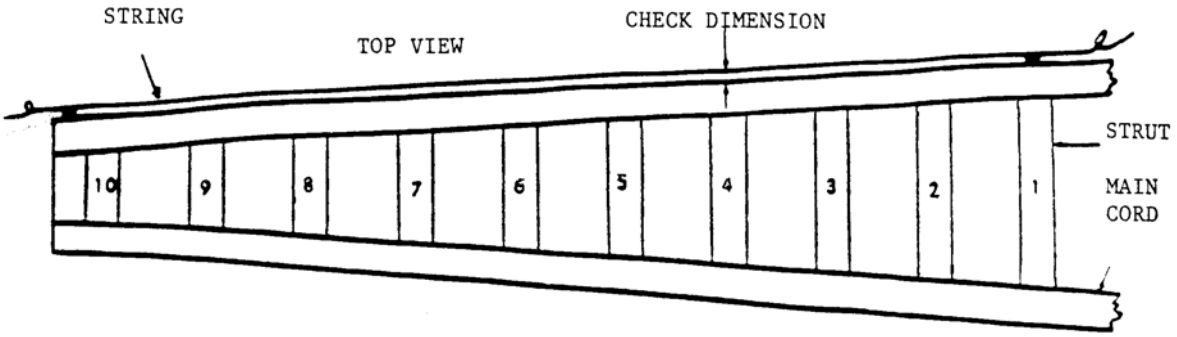


Fig. 5
GMK Style / Megaform

A-Frame Jib Sweep

Chkd. By _____ Model _____
Date _____ Serial # _____

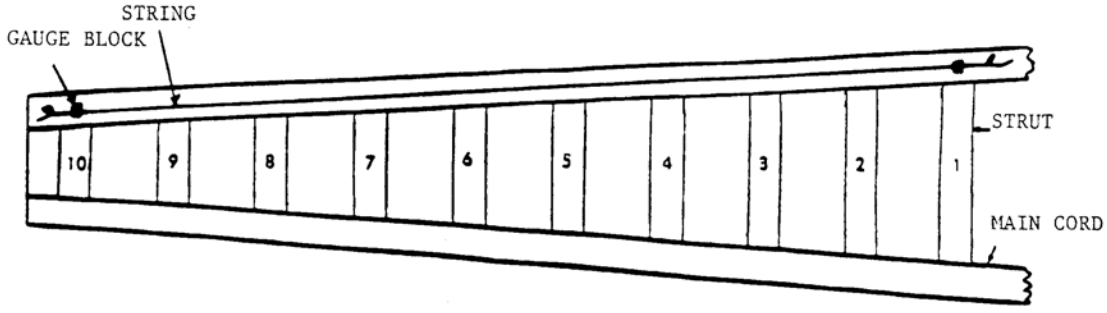
Distributor _____
Record Part Number of Jib _____
Record Serial Number of Jib Section _____



1. Place gauge blocks on the outside of the main chords, one on each end of the jib, and pull the string tightly over them.
2. Measure the distance between the string and the side of the main chord. Taking the check dimensions directly across from every strut the entire length of the jib. Check both main chords. At which strut was Maximum
3. Record the maximum check dimension on form. Check Dimension
4. Next record at which strut the maximum check dimension was found. Right Chord Left Chord
5. Repeat procedure for other main chord. _____ _____
Record Thickness of Gauge Blocks _____

Right Chord Left Chord

A-Frame Jib Camber



1. Place the jib so it's laying on its side.
2. Next place gauge blocks on the bottom side of the main chord, one at each end of jib, and pull the string tightly over them. _____ _____
3. Measure the distance between the string and bottom of main chord at various points from end to end to find the maximum check dimension. Check both main chords. _____
4. Record the maximum check dimension on this form. Record Thickness of
5. Now measure the distance from the rear of jib to where Gauge Blocks the maximum check dimension was found and record _____ on this form.

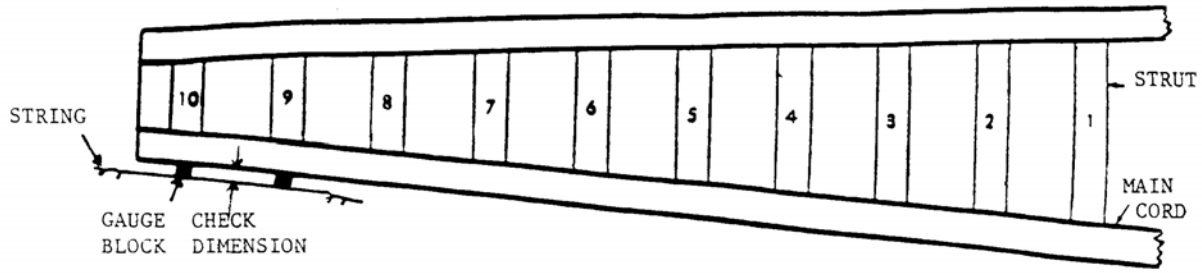
Maximum Check Dimension

Rear to Max. Chk. Dimension

Distance from the

A-Frame Jib Distortion in Main Chords Between Cross Struts

Chkd. By _____ Model _____
Date _____ Serial # _____
Distributor _____
Record Part Number of Jib _____
Record Serial Number of Jib Section _____



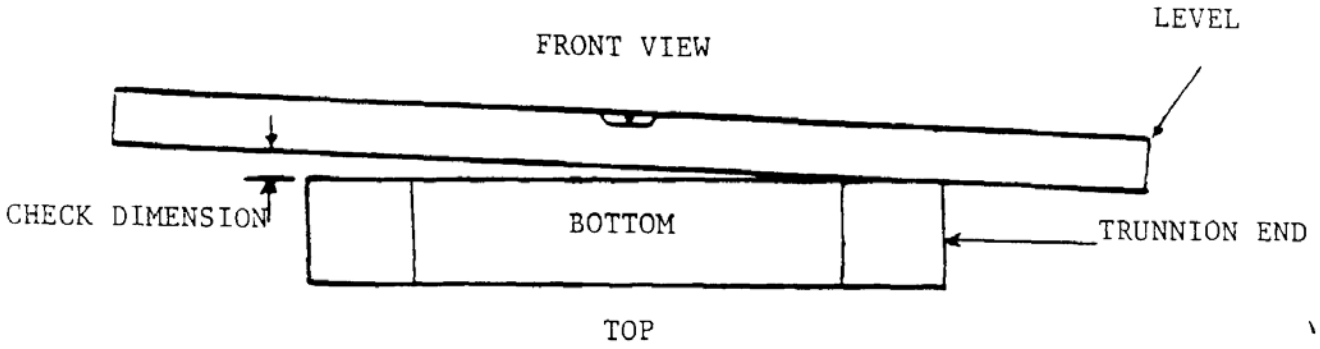
1. Place gauge blocks directly across from two struts on the outside of main chord.
2. Pull the string tightly across the blocks.
3. Measure the distance between the string and main chord at various points between the gauge blocks.
4. Record the maximum check dimension on this form.
5. Repeat this procedure measuring between all struts for both sides and record check dimensions.

Record thickness of gauge blocks _____

Record Distortion In Main Chord between Cross Struts

1-2	_____	_____
2-3	_____	_____
3-4	_____	_____
4-5	_____	_____
5-6	_____	_____
6-7	_____	_____
7-8	_____	_____
8-9	_____	_____
9-10	_____	_____

A-Frame Jib Twist



1. With the jib bottom up, level the front end of the jib.
2. Once the front is level, place the 4' level across main chords at the rear or trunnion end of jib.
3. Lifting either end of the level one way or the other until bubble is level.
4. Measure the distance between the level and the main chord. Record the check dimension as twist on form.

Record Check Dimension as Twist _____