

Instructions & Comments on Big Top Seating

Let's take a look at the seating arrangements in a big top and go into detail on the jacks and stringers as there seems to be a scarcity of material on this subject for model builders.

All dimensions are given in half inch scale. Modelers in other scales can halve or double these dimensions to suit their needs.

The measurements on the drawings are from Kenneth Whipple and credit is given to him. They were made in the Peru quarters by George Piercy.

The seats described here are for a big top on one of the larger shows of the 1930's or earlier using a 150 ft. round big top with three 50 foot middles (four pole top). Members using a six pole top can increase the quantity of parts needed accordingly.

The larger shows during this period used star backs on the back side, with grandstand chairs on the long or front side. One of the exceptions to this was Ringling which used grandstand seats on both sides. Star backs were in two sections here. One immediately in front of the side wall in the first section between No. 1 & 2 poles, with the other between Nos. 3 & 4 poles. The space between Nos. 2 & 3 poles contained the bandstand in line with the rear of the star back rears with the announcer located in front of the bandstand.

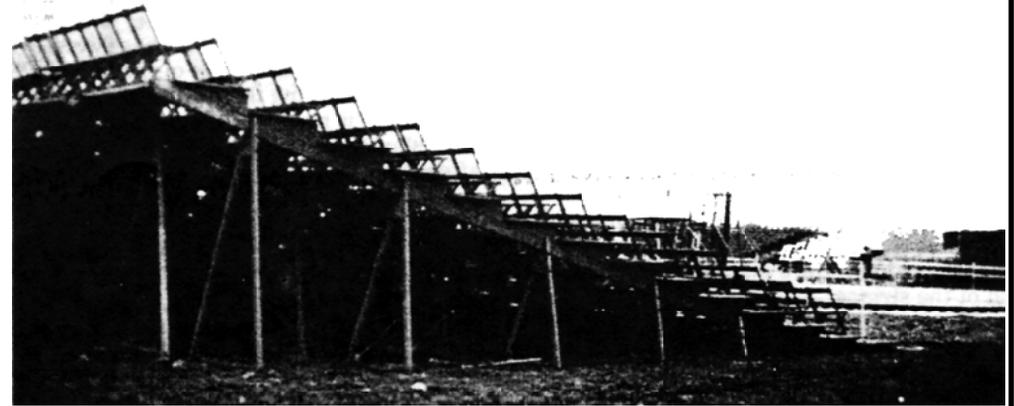
On each side of the bandstand was the back door entrance on the left and the exit on the right (facing bandstand from front.) Any act using the hippodrome track came in to the left and proceeded counterclockwise around the track. The grandstand was one continuous section placed along the front or long side in front of the side-wall of all three middles.

The blues occupied the round end sections of the tops, except where interrupted for the connection to menagerie, or for fire lanes between the blues and grandstand or reserved seat sections. In other words, any interruptions in the seating was made at the expense of the blues, if the layout of the lot and top made this possible. No reserved seat sections were shortened if at all possible.

In the time period described here general admission was 90¢ with 90¢ additional for reserved or grandstand seats. (both seats being same price).

In buying tickets at the ticket wagon one was sold grandstand seats if reserved seats were also purchased at the same time. If a general admission was bought only, and later on the inside, reserved seats were purchased from ticket sellers, one was given seats in the star back section. These sellers were given a 10% commission on every seat they sold.

The drawing of the floor plan of the big top with this article gives an idea of the general setup but could be varied from day to day depending on the lot layout and fire regulations (if any) in the city played that day.



April 4, 1937, Peru Indiana. The Hagenbeck-Wallace Grandstand is upon the bibles and the chairs are in place. Note the wider cut of the risers as compared with a later photo of the Blues. (From the Gordon Potter Collection).

The quantities given in the detail drawing are really only half enough for each unit. All seat planks bibles, & star backs are supported only at each end here. Actually, they should have stringers and a set of jacks supporting the middle also of each piece or section.

As the No. 1 jack legs actually overlapped on the ground they are omitted by me, as they look too cluttered in the model. A few more than required should be made of each and left on their respective wagons as spares as every show carried some. Also, a few stringers and jacks could be broken up and placed at their respective wagons or in the blacksmith shop for repairs to add a little detail.

Since the collapse of any section of seating would lead to injury of the audience, and resulting lawsuits, seating was set up with great care; Two methods were used to keep the units in position. In the first, a chain was run from socket on the ground end of the stringer by inserting a chain link in the slot and then backwards to Nos. 3, 2, & 1 jacks. These had an angle iron spreader between the legs of each jack near their bottom. In the middle

Big Top Seating Blues & Star Backs

DATE: 1930's

SCALE: 1/2" = 1'

SCANNED & REVISED:
05/09/02

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Circus Model Builders

Drawn By
Raymond Heim

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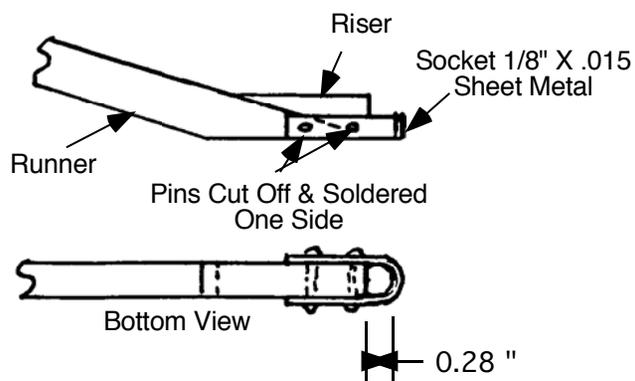
of this angle iron was a slot and a link in the chain was inserted into this slot at its appropriate length.

This held them rigidly in position as the chain, No. 1 jack, and stringer formed a triangle. No toe pin was needed for this method. Mostly the toe pin method was used. Here a socket of metal was bolted to the lower end of the stringer just large enough to allow insertion of the toe pin. This toe pin was a metal stake driven into the ground and through the toe pin socket and prevented the stringer from shifting. To my knowledge this was the most used method.

Toe pins usually were old Model T Ford axles. These had a small bevel gear at one end and made it easy for pulling at night. I remember when the Beatty show opened in New Mexico under the present ownership. They were so short of help I worked a few days wherever I could or: in show parlance, made myself "Generally Useful." One of the jobs was untangling the chains after they were in the possum belly of the stringer wagon haphazardly the previous night. Needless to say they were a mess and very tangled, so the reason for the popularity of the toe pin method was made very clear to me.

With either method, the jacks were always slanted towards the low end of the stringer. This was a rather small angle and varied from jack to jack and

Toe Pin Socket Details (All Alike)



depended on the unevenness of the lot on which the show set up. The seat sections were set up to maintain level from end to end as much as possible. Also to keep the rows even so there were no dips or high spots along its length.

The method of setting up seats is well known to model builders so we will not go into detail here except for a few notes which are not so obvious unless particular pains were taken to see them. Every jack leg was set on wooden blocks to prevent sinking into the ground due to the weight of the people

sitting on them. These blocks were made from 1 x 6 and 2 x 6 lumber cut 6 inches long.

One or more blocks would be placed on each other as needed to keep the section level and to keep the jacks in their proper positions.

Again the contour of the lot determined this, as low spots were leveled out by placing more blocks on top of each other. These blocks were carefully picked up at night during the teardown, usually by kid workers, and put into gunny sacks. (burlap bags). They were then taken to the jack wagon and placed in the possum belly.

One more detail we will discuss and is not shown on the drawings. I have not seen these used for some years now so will include here. These were wedges consisting of a 1 inch board cut with the wood grain to form an angle of 1 inch on the large end to sharp edge on the other end. They were around 3 inches long and the width of the board used. These were driven into the notch of each jack and on each side of the stringer to make a binding action and preventing the jack from slipping. Where these wedges were made is not known, but were possibly ordered from a mill work shop from day to day. They were usually left lying on the lot after the teardown.

As noted on the drawing, the middle piece of each jack was the same size for any length jack. Usually it was 2 x 8 lumber. These were fastened to the legs proper with long carriage bolts through holes drilled through the legs proper and middle piece. The threaded end had a nut and washer screwed on it. These are simulated here by using 4 No. 20 x 3/8" escutcheon pins for each jack. The spreader on the bottom of the legs on No. 1, 2, 3 jacks were made of 1/2" steel rod, threaded on each end and the threads long enough so a nut and washer could be placed on each side of the jack leg. These rods were used for toe pin jacks. On the chain type angle iron was used instead of the rods. A notch in the center of each angle iron allowed a link of the chain to be inserted. In my case: the rods are represented by a piece of 1/6" piano wire put into each leg through a hole drilled small enough to make a force fit.

Ken Whipple says he can remember them making jacks in the Peru quarters. Each center section was made by using a power swing saw for cutting them off. They were cut from a 2 x 8 by one man flopping them over for and after each cut.

Jacks were placed in the jack wagon with Nos. 1 & 3 jacks nested and laid on their sides. Another pile contained No. 2 & 4 jacks also nested. No. 5 jack was loaded randomly into the jack wagon wherever there was room. All jacks except No. 5

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were stacked flat. Toe pins (or chains) were loaded into the possum bellies. Usually there were two jack wagons. One carried the grandstand and reserved seat jacks and the other the blue jacks. Stringer runners were made of 2 x 8 lumber. Risers were made of 2" stock of a width to make the riser. The risers were bolted to the runners with two bolts in their proper position. Sometimes short straps were bent and screws were used to attach these to the front of the riser and then onto the runner making the greater strength. Stringers, because of their long length, were relatively fragile and easily broken. If accidentally dropped they could crack and split with the stringer weakening. They were laid on their side in the stringer wagon, the risers nesting to form almost a solid layer of lumber when loaded.

Stringers were also usually loaded on two wagons as were the jacks. On top of them were placed the quarter poles. Usually blue quarters on wagon and reds on the other. On top of the quarter poles were the Georgia chariots (stake pullers), smoke wagon, Bull tubs, sea lion carts and other big top props too bulky to be placed in regular prop wagons and which would not be damaged by being exposed to the weather.

This article is not intended to cover seat planks, bibles or star backs except for a couple of notes. Blue seat planks were all the same length in the larger tops. Each had a bolt at each end in a hole drilled from edge to edge. This helped in keeping the plank from splitting through rough usage. Even if all of the seat planks on the round ends of the prototype top were the same length in the model they must be cut individually to length or the ones near the bottom of the stringer would be too long and overhang due to the much shorter radii of the model.

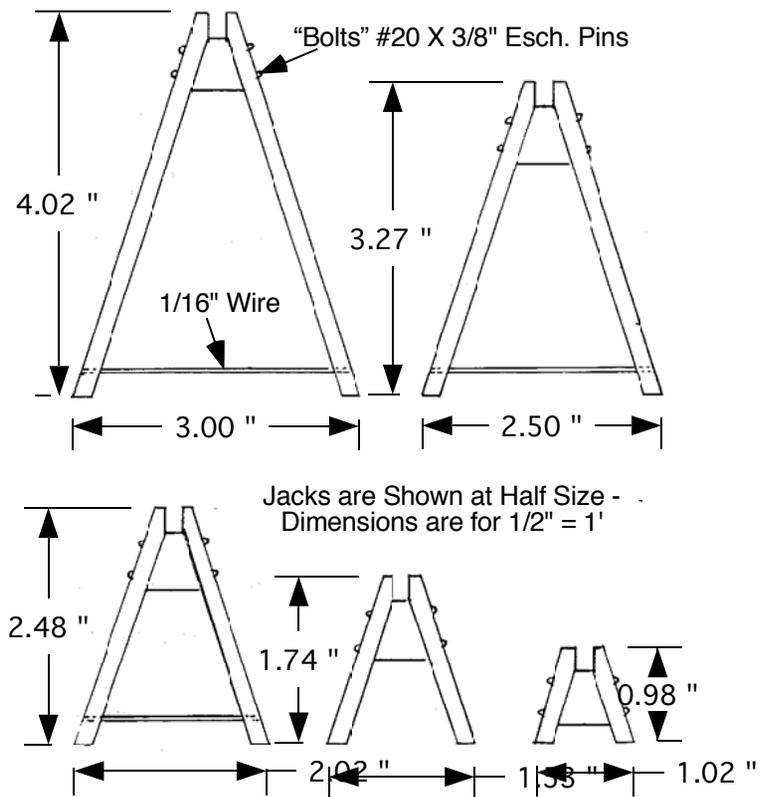
All parts of the unreserved seats were painted blue hence the name blues. Usually the star backs were painted orange and the grandstand seats red. There were lots of exceptions to this, of course.

All planking: blue planks, star backs, and bibles, were roped to the stringers to prevent them from shifting and being kicked off of the stringer risers. These ropes were 1/4 manila with a loop on one end which was placed over the high end of the jack, then over the plank, under the stringer, over the next plank, etc. until the bottom of the stringer was reached and there each rope was tied off either on the last plank and stringer bottom or sometimes on the tow pin if used. Another seat tie rope sometimes used, instead of the above, was binder twine. While the manila rope was used day after day being placed in burlap sacks at night and into the possum belly of one of the seat wagons, the twine was on a one shot deal. These pieces were cut to length daily and used one day. During the teardown it was cut in several pieces to release the seat planks and left lying on the ground with a fresh set cut the following day.

Chairs on the grandstand section were strapped together into three or four to a set. This consisted of an iron strap near the top and back of each chair and another strap on the back leg. The chairs were bolted to this strap.

One more thing which seems to be unknown to model builders. Each plank, star back, or bible was placed so that the left end and the left end only overlapped the preceding one and was on top. This made it possible to start at the left end when placing the planking and working to the right without having to lift the preceding board to put it under. At night loading was started on the right and worked towards the left thus making each board on top as they worked along making it unnecessary to remove it from under the following one. *This* saved work and time. To my knowledge seats were never carried out of the top but the wagons were brought in and loaded on what had been the hippodrome track.

On most shows the ring curbs were loaded on the sides of the plank wagons in metal straps or bales. As the last act of the show finished all workmen would run into the top, grab a ring curb section and take it to its proper wagon to be loaded.



This was just before the concert began. Later these wagons were brought into the top to be loaded with seat planks. The only reason to account for this procedure was to get the ring curbs out of the way for the concert as they could be loaded with less work when the wagons were inside the top.

This article is starting to ramble into other departments so will close with this last note: Toe pins were driven by hand by the seat men and at night were pulled by the stringer using the No. 5 jack for a fulcrum. The iron ring on the stake would prevent the stringer from slipping over the top and allow the toe pin to be pulled in this manner.

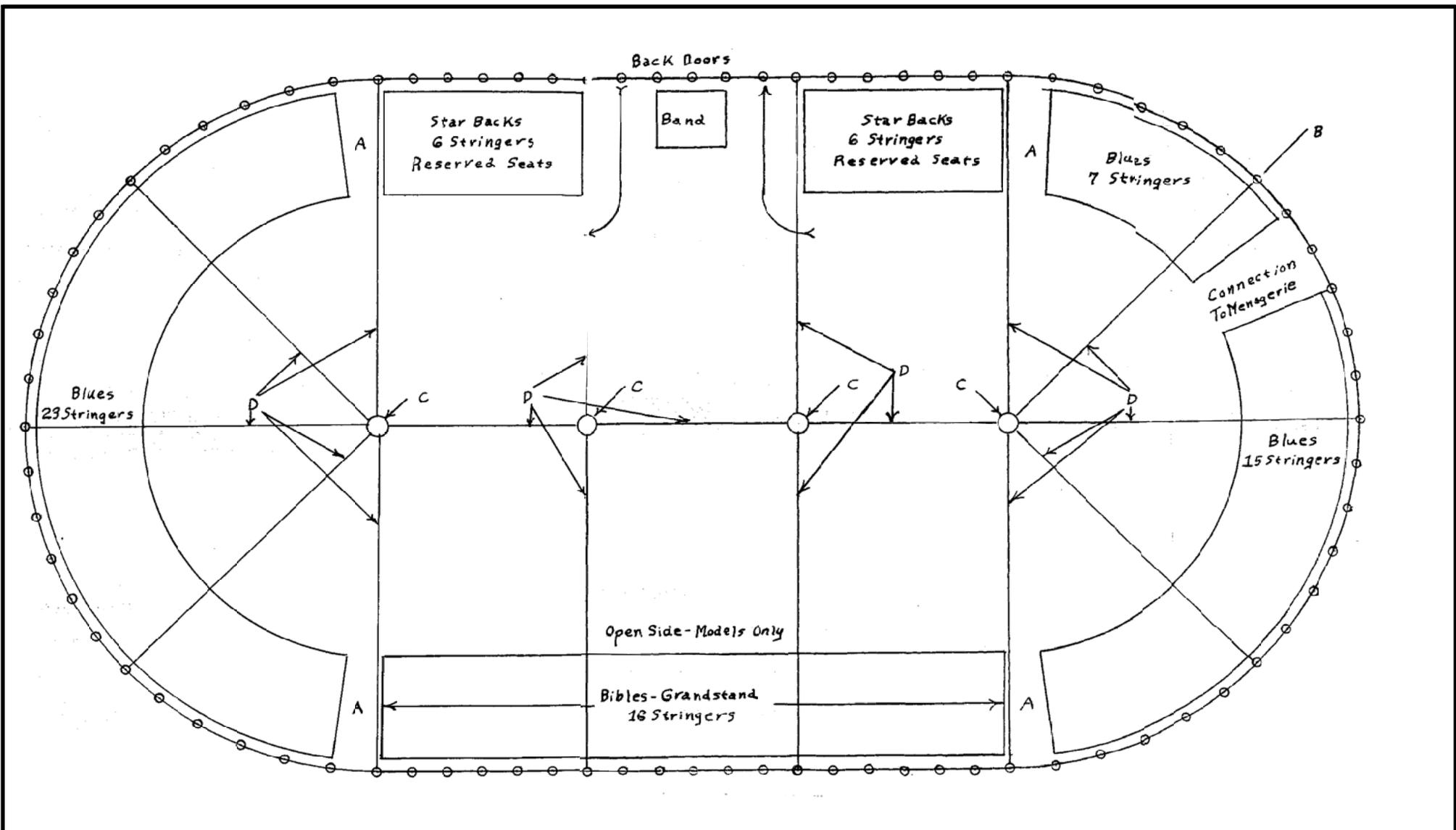
Big Top Seating Blues & Star Backs

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SCALE: 1/2" = 1'

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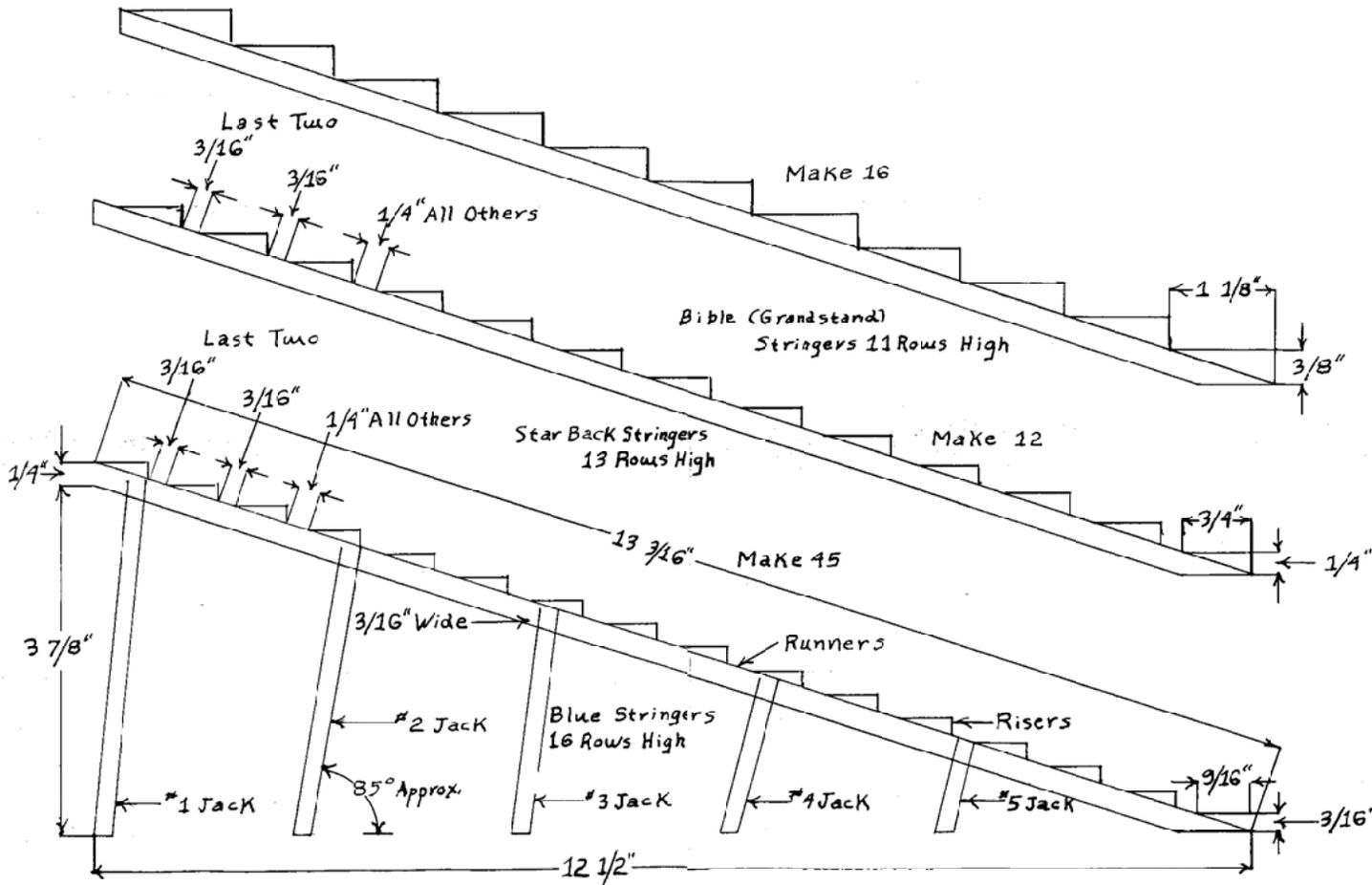
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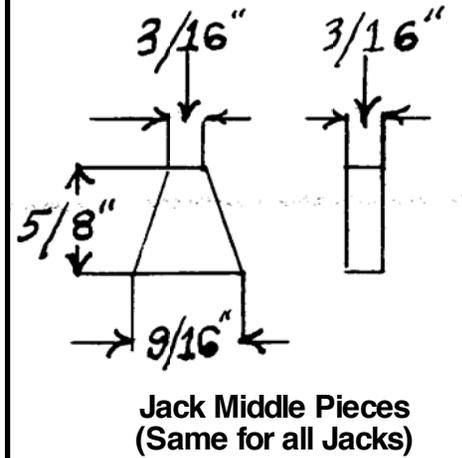
Seating for 150" Round Big Top
Typical Floor Plan
 1" = 30'

- Legend
- A Fire Exits
 - B Side Poles
 - C Center Poles
 - D Canvas Lace Lines

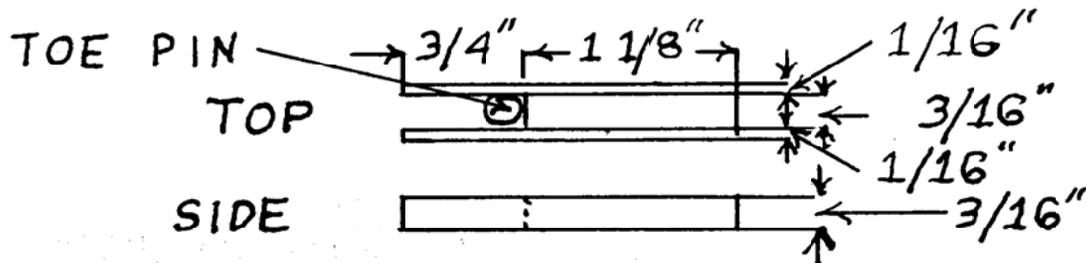
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Blues & Star Backs			
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Stringers are Shown at Half Size -
Dimensions are for 1/2" = 1'

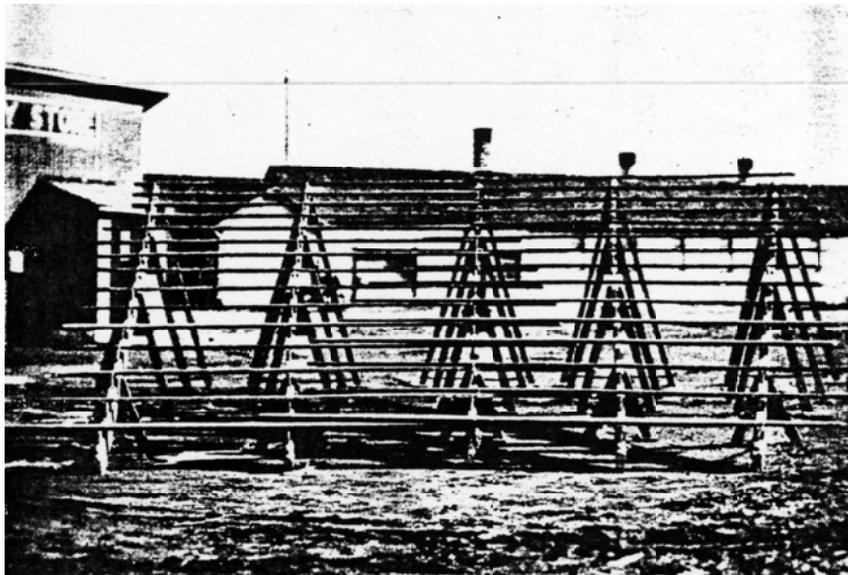


Jokers (Make 16)

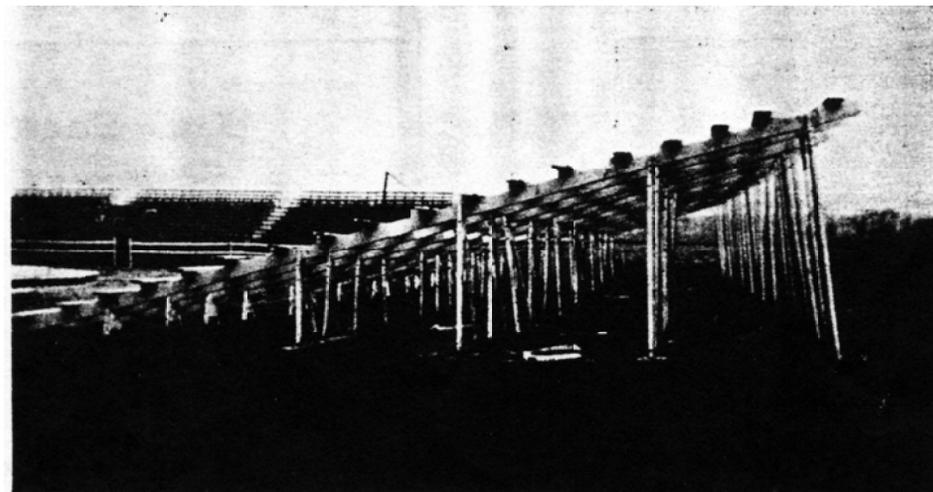


Jokers May Be Added in Front of Toe Pin to
Provide an Extra Row of Seats (Chairs)

**Big Top Seating
Blues & Star Backs**



Two views of the blues again at Peru, Indiana. Note how the center sections overlap each other. If you look hard in the front view, you can make out the ropes lashing the center section together and securing both ends to the jacks. Again, mud blocks are evident.



A side view of the blues. These were bleacher seats, usually set at either end of the big top. Note the wood blocks under the jacks to prevent their sinking into the mud. Although the ropes are not visible, they are there. The Grandstand can be seen in the background (Gordon Potter Collection)



Side view of the blues. This is the same set as shown in the front and rear view. (Gordon Potter Collection)

Note: We apologize for the poor quality of the photos, but the copies available for scanning were photo copies, not real photos. (Mike Dreiling, Superintendent of Plans, May 2002)

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