FACT SHEET

BSA Item 7696A,
Aluminum Track Plating

Description: This is not a pre-fabricated track. This is a space-age surface only to be applied to any existing track or track frame. Each plate has been formed to official BSA Pinewood Derby® standards. Each plate is designed to function as the surface for one lane with center guide strips. Plating is sold in boxes of 6 plates as BSA item **7696A**. (When necessary, single plates can be ordered as BSA item 7696.)

Quantity: Each extruded aluminum plate measures approximately 93" long by 3.945" wide by .062" thick. To determine the number of plates needed use the following calculation: ***the total length of the track in inches, divide by 93, then multiply by the number of lanes wide***.

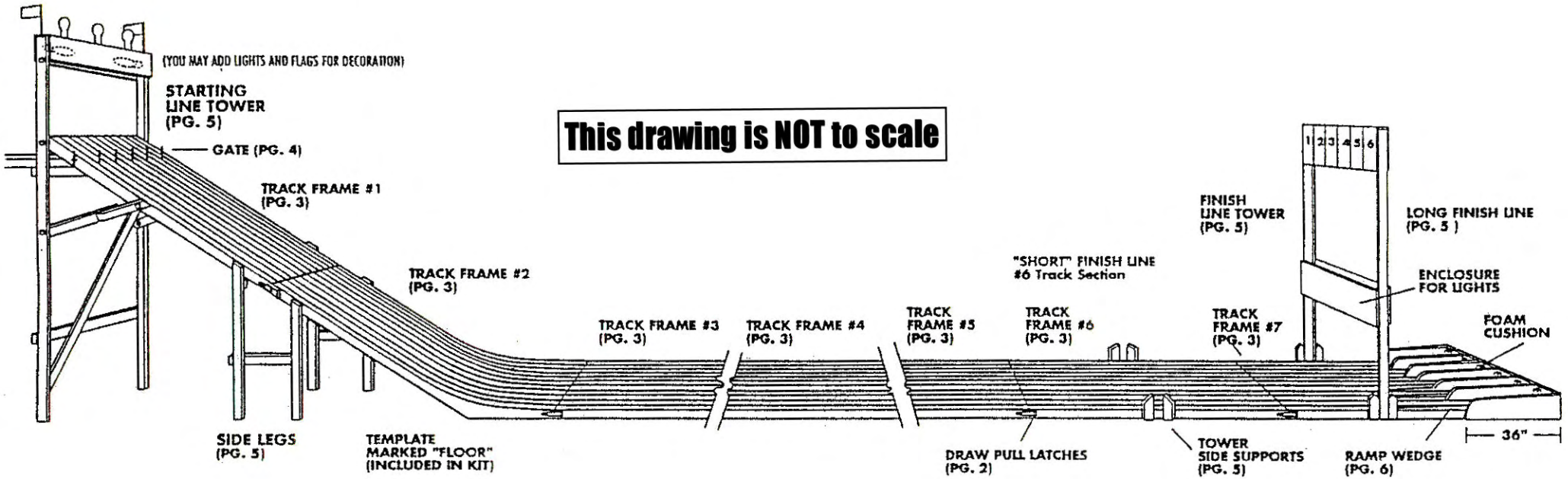
Installation: Because every track is not the same, no holes have been pre-drilled and no screws are provided. Plates fit together with tongue-in-groove style edges on the long sides. Pins are included to align the plates end-to-end. You will receive 3 pins that are approximately 10" long. These must be cut to 1.5" lengths.

Advantages: Each section of plating is manufactured to be virtually identical. Identical lanes eliminate inconsistencies and create identical racing conditions for each participant.

Comments: Some skills and tools are required to install the plating. Mistakes can become costly. Therefore, carefully read all of the track plans prior to ordering or starting your project.

"THE CHALLENGER"
PINEWOOD DERBY TRACK

SPECIAL NOTE:
- **Construction requires some knowledge of tools and carpentry.**
- **Plan is designed to use lightweight aluminum plating (BSA #7696Aas decking.**



This drawing is NOT to scale

THIS SET OF DRAWINGS AND INSTRUCTIONS ARE FOR "THE CHALLENGER" PINEWOOD DERBY TRACK. BUILT 54'-3" LONG IN SEVEN 93" LONG SECTIONS. IT HAS PROVISION FOR TWO FINISH LINES, ONE IN THE SIXTH SECTION AND THE OTHER IN THE SEVENTH SECTION. THE OPTION IS YOUR DECISION. THE 'SHORT' FINISH LINE CAN BE USED FOR THE ELIMINATION ROUNDS AND THE 'LONG' FINISH LINE FOR THE EXCITING FINAL RACE. THIS TRACK SYSTEM CAN BE BUILT FOR 2-3-4-6 OR 8 LANES. THIS PLAN AND INSTRUCTIONS ARE FOR BUILDING A SIX-LANE TRACK.

BEFORE STARTING CONSTRUCTION, IT IS ADVISABLE TO READ ALL INSTRUCTIONS AND TO REVIEW THE PLAN TO IDENTIFY THE VARIOUS MATERIALS REQUIRED.

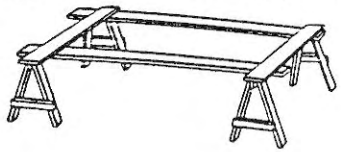
HARDWARE:
- 6 1/8 X 1-1/4 X 16" Aluminum Strips
- 74 Phillips Head Dry-Wall Screws 1 5/8 #6
- 200 Phillips Head Dry-Wall Screws 2" #8
- 318 Phillips Pan-Head Screws 3/4 #6 (for Plating)
- 12 Draw-Pull Latches, McMaster Cat. #1590-A-21
- 24 1/4 - 20 X 2" Nuts and Bolts
- 1 Small Box 1" #16 Nails or Brads
- 24 3/4 #6 Flat-Head Wood Screws for Aluminum Tongues
- Starting Gate Hardware as Listed on Plan (PG.4)

MATERIALS:
- 1-1/2 Sheets of 3/4" Furniture-Grade Birch Plywood
- 3 1-1/8 x 3" x 36" for 6 Wedges
- 1 Sheet 1/4" Plywood 4'x4'
- 2 3/4 x 8" x 8'-0" Pine Cross-Frames
- 1 3/4 x 6" x 10' - 0" Pine Cross-Frames and Ends
- 4 1/8" x 6" x 25" Harboard for Tower Side Supports
- 2 1/8" x 3" x 25" Harboard for Starting Tower
- Aluminum Track Plating Rails (BSA #7696) - See Page 2

MISCELLANEOUS:
- Paint
- Glue
- Foam
- Numbers
- Tools

CONSTRUCTION

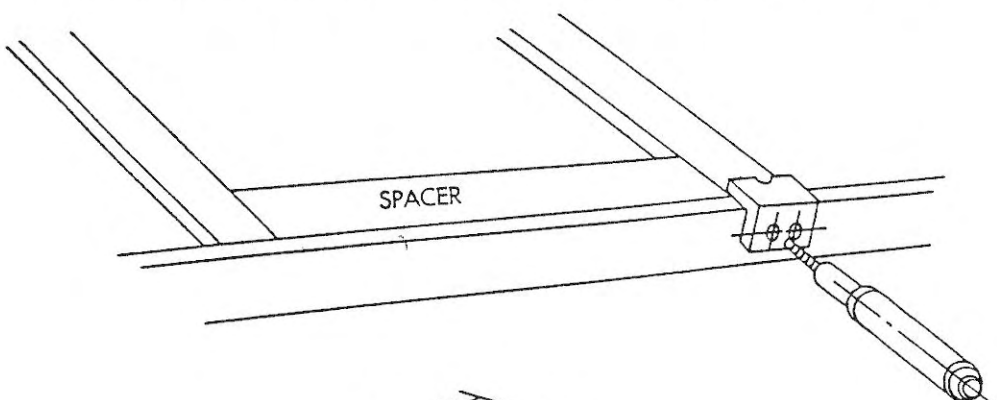
First, select a suitable work area where a bench 3' high x 3' wide x 12' long can be used. A pair of saw-horses and (2) 2" x 6" x 12' straight planks make a good work bench.

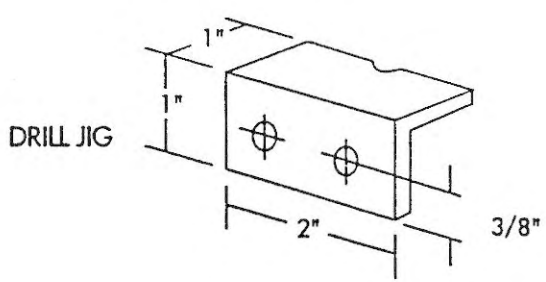


In building a 2 - 3 - 4 or 8 lane track, the difference lies in the lengths of the cross frames.

LANES	WIDTH	CROSS FRAMES	PLATING RAILS (BSA #7696)	
			6 Sections	7 Sections
2	8 - 1/4"	6 - 3/4"	12	14
3	12"	10-1/2"	18	21
4	15-3/4"	14-1/4"	24	28
6	23-1/4"	21-3/4"	36	42
8	30-3/4"	29-1/4"	48	56

Cut the lumber into the required lengths as shown on drawings, pgs. 3 and 5. Save all short ends that can be used for track supports, etc. Specifications for 2-3-4-6 and 8 lane tracks on plan. Assemble the Starting Frame first (see Track Frames, page 3). Make a drill jig like the one below for marking the screw hole locations. Pre-drill and countersink all holes. Use the 2" #8 screws for all cross frames and ends.

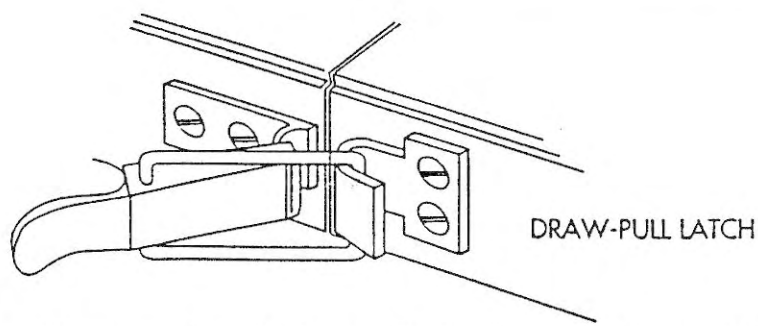




Continue to assemble the second frame which is the curved section on page 3. Make sure you fasten the area marked "Floor" so it will rest on the floor. After the seven frames are assembled, complete construction of the Starting Line Tower, Track Legs, Finish Line Tower and the Finish Line Section. Now would be a good time to paint or seal all the wood parts. After the paint or sealer is dry, prepare to install the draw-pull latches.

Set the Starting Section marked #1, and the curved section marked #2 on the work bench. Insert the 1/8" aluminum tongue in place. Then clamp the ends together. Make sure the top of the end frames are even. If not, make the necessary adjustments. Now fasten the draw-pull clamps onto the Side Frames. After that is done, remove Section #1 and put Section #2 on the bench. Use the same procedure to fasten the draw-pulls between Sections #2 and #3. Do the same for Sections #3 and #4, #4 and #5, #5 and #6, and #6 and #7.

This plan is designed to use special lightweight aluminum plating rails (BSA #7696) as a decking/racing surface. If you use any other material to deck your track, you may have to reinforce the framing (and add more weight). To order your plating and installation instructions call: 1-800-323-0732. Use the chart on the left to determine how many rails you'll need.

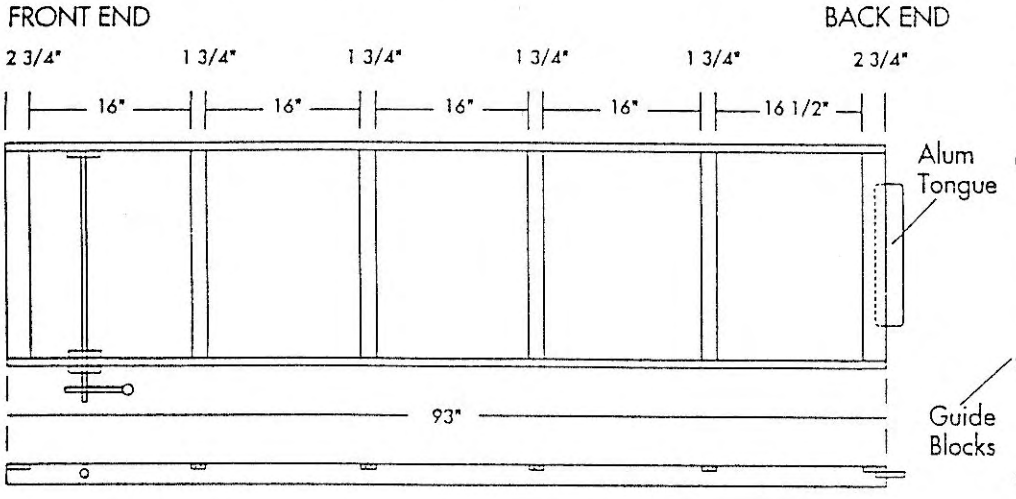


After all the frames have the draw-pull latches secured in place, and the Starting Tower, Track Legs and Finish Line Tower (page 5) are complete, install the Starting Gate, (page 4). If you decide to have an electric start system, you need a solenoid and an on-and-off switch to operate it. (Grainger Catalog #2X661 Home Laundry Replacement Solenoid Switch from local hardware store).

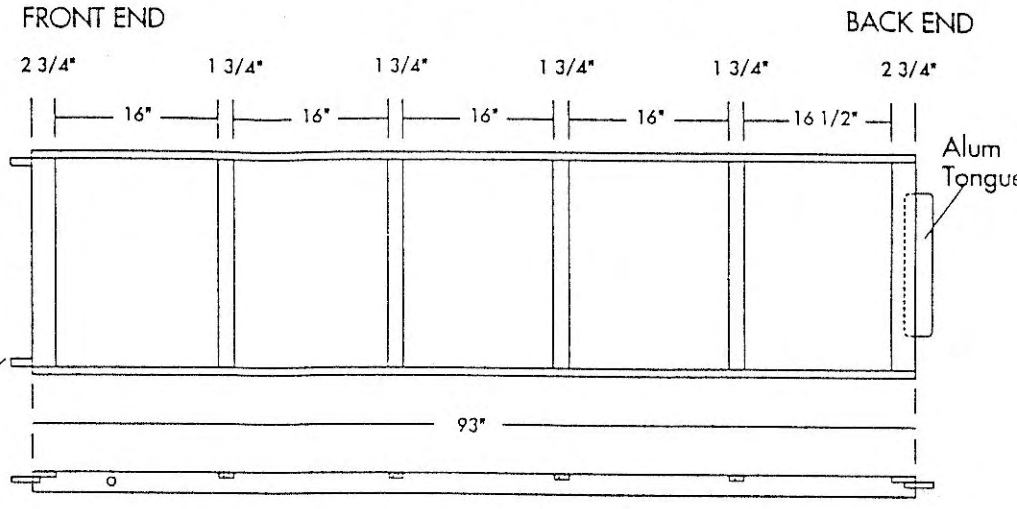
Lay Sections #1 and #2 on the floor, then latch them together with the draw-pulls. Carefully raise the Starting end and temporarily clamp the track frame onto the Starting Tower (page 5). Now clamp the legs in place. Make sure the curved section is parallel to the floor. Then level and square up the track. Drill the 1/4" clearance holes, as shown on page 5. Then install and tighten the 1/4" bolts. Do the same for the Side Legs, (page 5).

If you have an area available, assemble the seven sections of track and inspect them for accuracy.

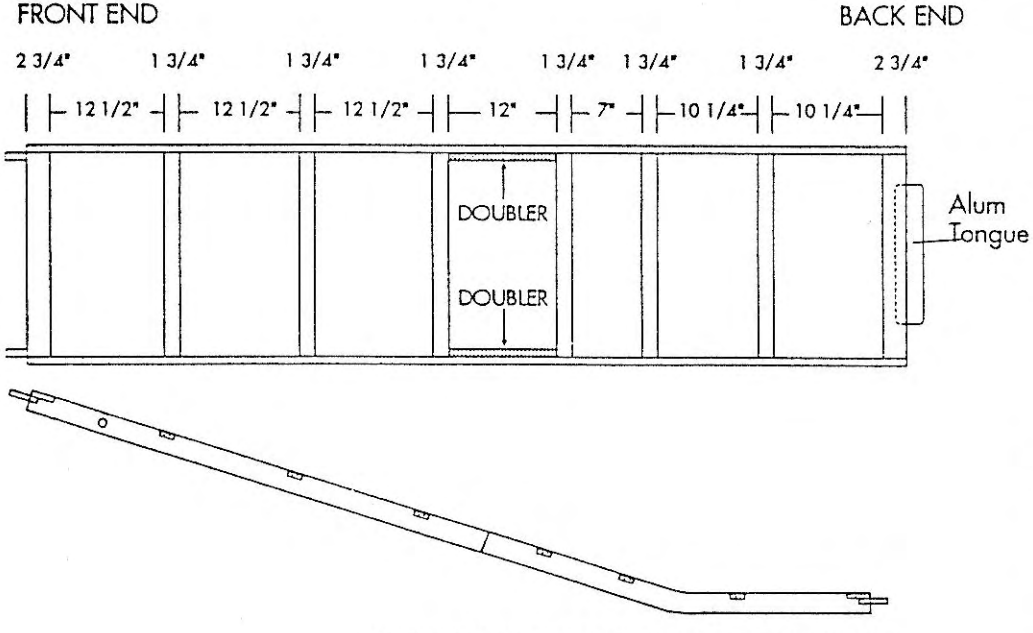
TRACK FRAME #1



TRACK FRAME #'s 3 - 7



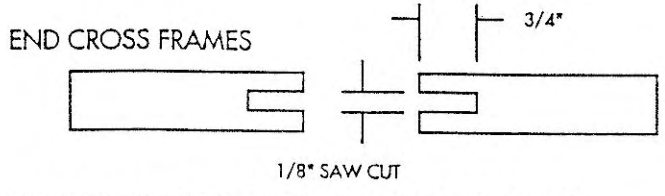
TRACK FRAME #2 (CURVED SECTION)



USE TEMPLATE AS INCLUDED IN KIT

WOOD FOR TRACK FRAMES

- 10 3/4" x 2' x 93" Sides
- 42 3/4" X 1-3/4" X 21-3/4" Cross Frames
- 12 3/4" X 2-7/8" X 21-3/4" End Cross Frames with 1/8" Saw Groove (See Plan
- 2 3/4" X 2' X 51-1/4" Curved Section Sides
- 2 3/4" Cut to Template Curved Section Sides
- 2 3/4" X 2" X 12" Doubler for Curved Section
- 12 3/4" X 1-1/2" X 5" End Guide Blocks



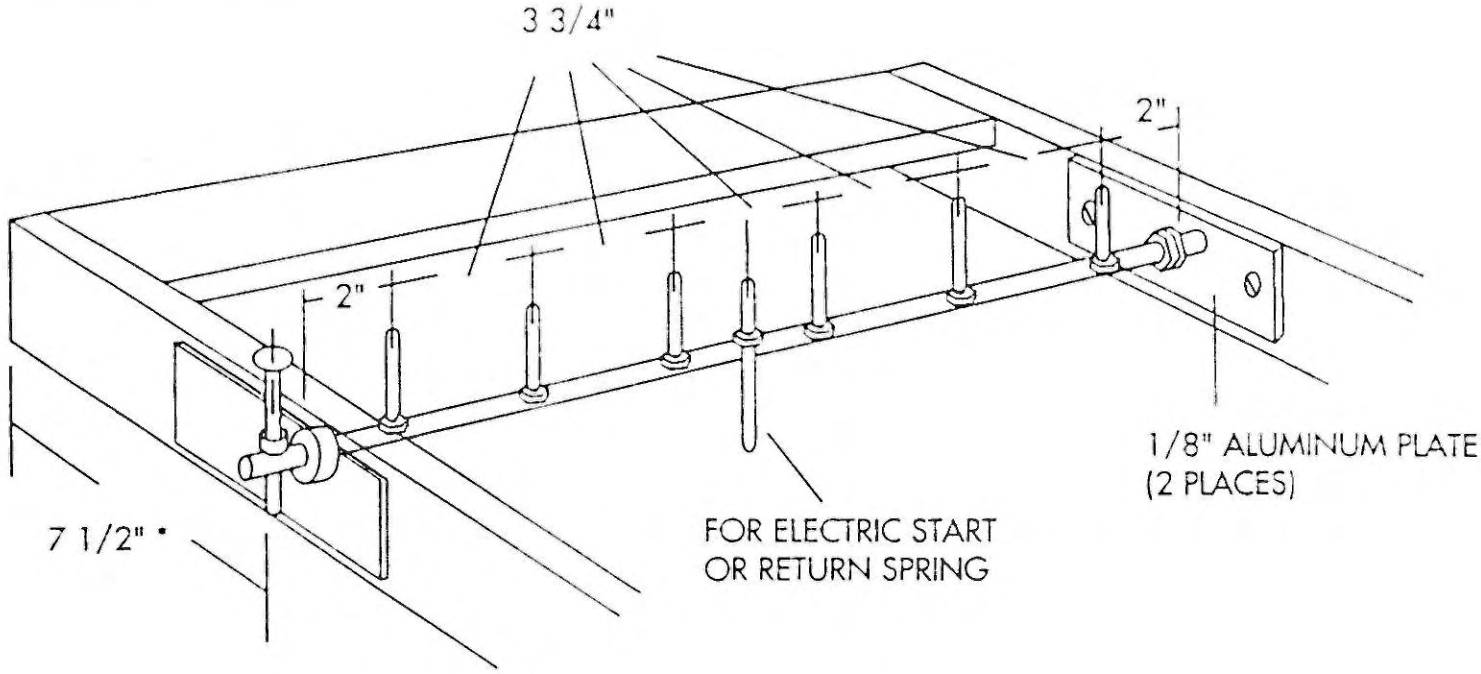
WOOD FOR CURVED SECTION (TRACK FRAME #2)

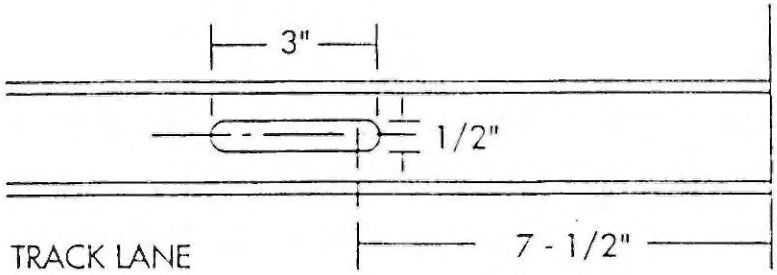
- 2 3/4" Plywood - Cut to Template Sides
- 2 3/4" x 2" x 51 - 1/4" Plywood Sides
- 2 3/4" x 2" x 12" Doublers
- 2 3/4" x 2-3/4" x 21-3/4" Pine Ends with Saw Cut Grooves
- 6 3/4" x 2" x 21-3/4" Pine Cross Frames
- 2 3/4" x 1-1/2" x 5" Guide Blocks, Pine or Plywood

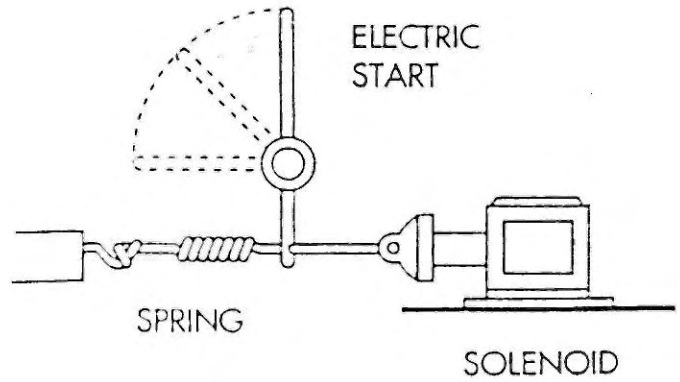
HARDWARE FOR EACH SECTION

- 32 2" #8 Dry-Wall Screws for Sides
- 20 1 - 1/2 #6 Dry-Wall Screws for Doublers and Guide Blocks
- 1 1/8" x 1-1/4" x 16" Aluminum Strips for Tongue
- 2 Draw-Pull Latches and Screws
- 4 3/4" #6 Flat-Head Screws for Tongues

STARTING GATE







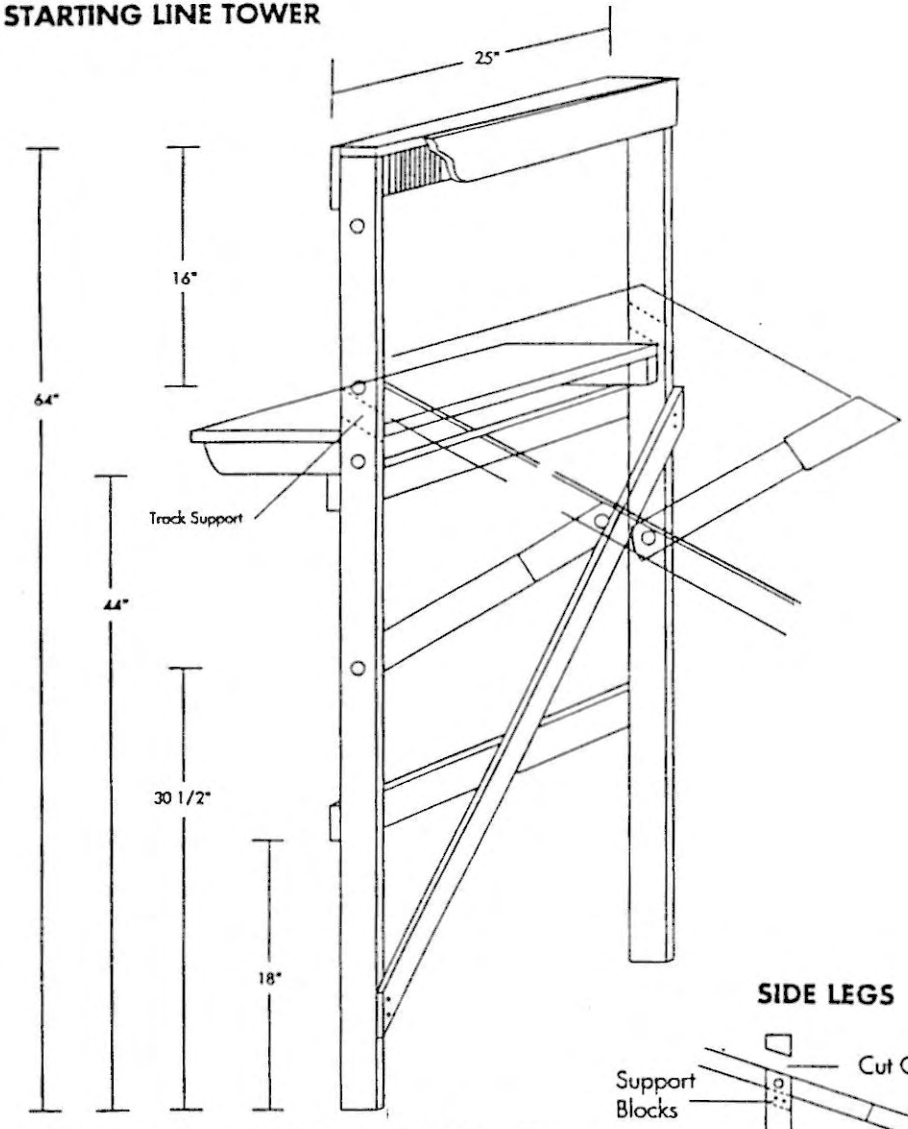
STARTING GATE HARDWARE

- 1 1/2" Steel Rod 26" long
- 2 1/2" Collars
- 7 10/32 x 3" Bolts
- 7 10/32 Nuts
- 1 1/4" x 20 x 6" Bolt and 2 Nuts for handle
- 2 1/8" x 1 - 1/2" x 4" Aluminum Plates

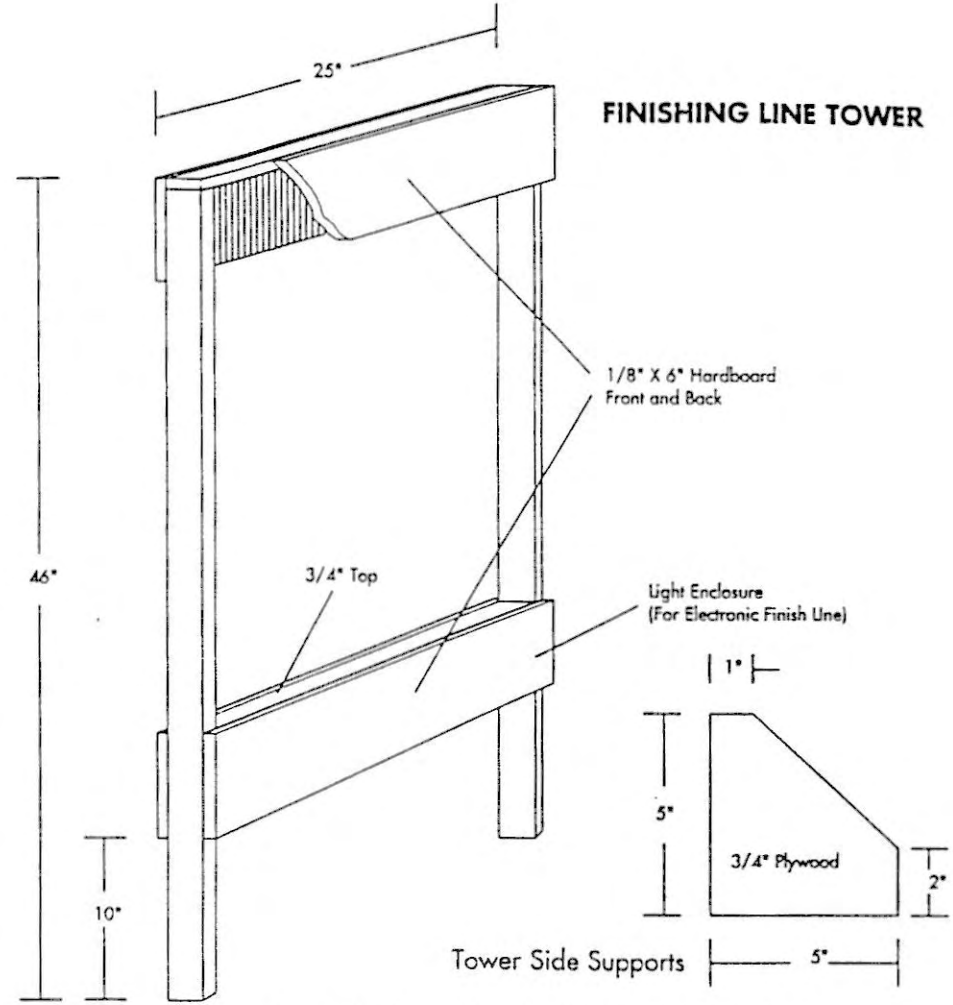
Heat-shrink tubing can be used over the 10/32 bolts to protect car finish.

* If you plan to race the "BIG RIG" 18 Wheeler Track Trailer on your track, extend the starting gate from 7 1/2" to 17 1/2".

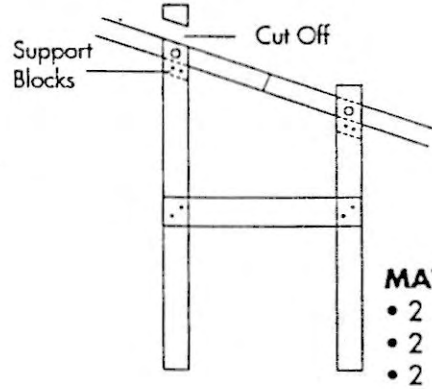
STARTING LINE TOWER



FINISHING LINE TOWER



SIDE LEGS



MATERIALS FOR STARTING LINE TOWER

- 2 3/4" X 2-7/8" X 64" Sides
- 3 3/4" x 2-7/8" x 25" Cross Braces and Top
- 2 3/4" x 2" x 2-7/8" Track Supports
- 2 3/4" x 1-1/2" x 10" Shelf Supports
- 1 1/4" x 10" x 24" Shelf
- 2 3/4" x 2" x 24" Side Braces
- 2 3/4" x 2" x 8" Side Braces
- 2 1/8" x 3" x 25" Hardboard
- 1 3/4" x 2" x 50" Diagonal Brace
- 1" #16 Nails or Brads
- 1/4 - 20 x 2" Nuts & Bolts
- 24 #8 Dry Wall Screws

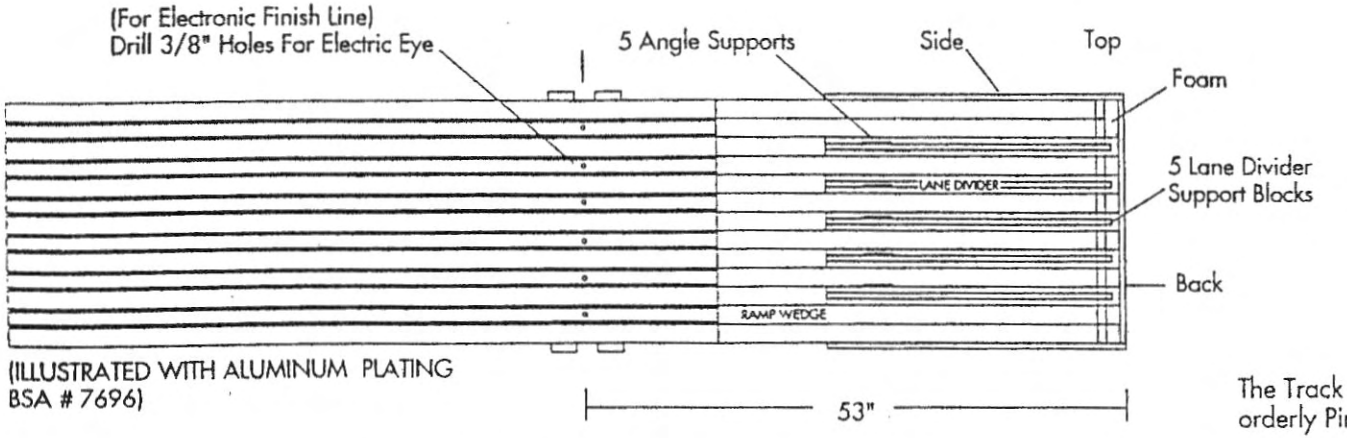
MATERIALS FOR FINISHING LINE TOWER

- 2 3/4" x 5" x 48" Sides
- 1 3/4" x 5" x 25" Top
- 1 3/4" x 5" x 23-1/2" Top of Light Enclosure
- 8 3/4" x 5" x 5" Tower Side Supports (see drawing)
- 4 1/8" x 6" x 25" Hardboards (see drawing)
- 1" #16 Nails or Brads
- 12 #8 Dry Wall Screws

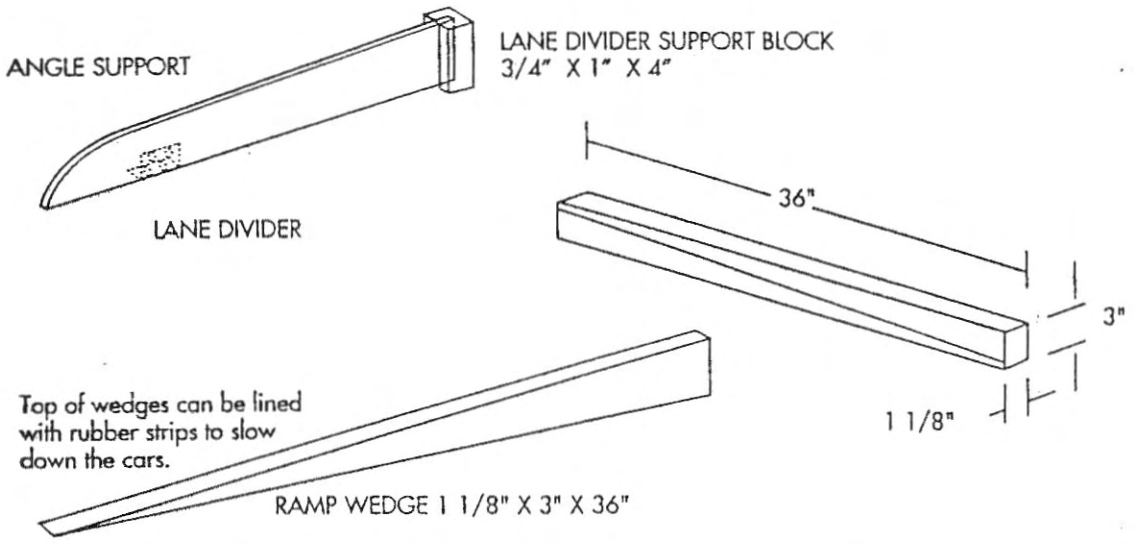
MATERIALS FOR SIDE LEGS

- 2 3/4" X 2" X 22" Upright Supports
- 2 3/4" X 2" X 26" Upright Supports
- 2 3/4" X 2" X 20" Cross Braces
- 4 3/4" X 2" X 2" Support Blocks
- 1" #16 Nails or Brads
- 4 1/4 - 20 x 2" Nuts & Bolts
- 16 #8 Dry Wall Screws

FINISH LINE SECTION



(ILLUSTRATED WITH ALUMINUM PLATING
BSA # 7696)

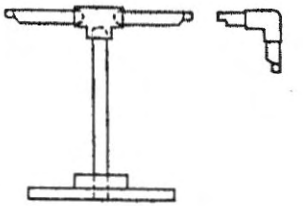


All track frames are 93" long. Starting and Finish Line Towers cross braces lengths must be adjusted to the size track you select. The materials and dimensions below are for a 6-lane track.

- 3 1 -1/8" x 3" x 36" Cut to 6 Wedges (see drawing)
- 5 1/4" x 4" x 36" Plywood Lane Partitions
- 2 1/4" x 6" x 36" Plywood Lane Sides
- 1 1/4" x 6" x 24" Plywood Back
- 1 1/4" x 2" x 24" Top
- 2 3/4" x 1" x 3" End Partition Supports
- 5 1" x 1" x 4" Dado for Divider Supports
- 5 3/4" x 3/4" x 2" Metal Angle Supports

Line the car stalls at the end of the Finish Line with foam to protect the cars. Apply numbers to identify the track lanes.

TRACK BARRIER ENCLOSURE 10' x 50' - FOR 6 AND 7 SECTION TRACK



The Track Barrier Enclosure is very important for conducting an orderly Pinewood Derby Race. Its construction is optional.

- 23 3/4" x 8" x 8" Plywood Bases
- 23 1 -1/2" x 3" x 3" Center Support with 1 - 1/2" hole in center
- 18 6 ft. 1" PVC Pipe
- 2 5 ft. 1" PVC Pipe
- 2 4 ft. 1" PVC Pipe
- 23 1" PVC T's, 6 1" PVC L's, and 4 1" x 2" Nipples
- 23 20" 1" PVC Pipe

FINISHED TRACK ASSEMBLY

1 - Bolt section #1 to Starting Tower, including the braces.
2 - Raise section #1 and bolt Side Legs to it.
3 - Align the section #2 (curved section) into section #1. Close the Drawer Pull Latches. Bolt the Side Legs to section #2 and check the rail for alignment. If in doubt, insert the 1/8" pins.
4 - Align sections #'s 3-4-5-6-7 in the same manner. Check rail alignment and then close the Drawer Pull Latches.
5 - Test all equipment and track alignment by running a few cars. If satisfactory, you are ready to race.

NOTE: If you build 2 finish lines into track and are using the Electronic Finish Lines just move the units to the selected finish line.