

Pack 214 – Pinewood Derby – Race Management Technology

Last Updated: January 21, 2005

SOFTWARE

RaceVIEW software (www.Raceview.com)

Files in Derby Data folder:

- .div – division information for entire race
- .rg1 – racer information
- .kep – backup of .rg1 file

Files in Results-text folder:

- .ch1 – 1st thru 4th place finish summary by division
- .lg1 – individual race start/stop time summary by division
- .rs1 – detailed race results, including finish results, elapsed times, lane assignments

Screens:

- Preferences
 - Elimination Threshold – set to “9” so all scouts race a minimum of three times on a four lane track.
 - Number of Filler Cars – set to 2-6 for races with less than four cars
 - Number of Lanes to Use – set to “4” with our four lane track
 - Display/Print Lane Assignments – set to “Display Only”
 - Advanced Preferences – no updates here
 - Show Times on Race Display – set to “Show Times” to display ET on screen
 - Finish Method – set to “Serial” when using the timer, “Manual” if timer is malfunctioning, and “Simulated” when testing.
 - Timer Model – select “DT8000”
 - Serial Port – select “Modem/COM1”
 - Enable Warnings? – select “Warnings On”
 - Set Data Directory – set to the location of your derby data files
- Registration
 - Use RVEdit in place of this screen
- Test the Timer
 - Serial Port – select “COM1”
 - Port Settings – select “DT8000”
 - Comm Port Settings – when DT8000 is selected in Port Settings, the connection parameters will be displayed here after pressing “Init Port”
 - Timer Model – I don’t know what this does or if it even works.
 - After completing this screen and after disabling any software on COM1 and after setting the COM1 port settings with HyperTerminal, connect the timer to the computer and turn it on. You should see the startup string in the “Characters Read from Timer” box.
 - Accept/Cancel buttons – the accept button never becomes active, so press cancel to exit the screen. All port and timer information is saved (sounds like a bug in the code!).
- Run a Derby
 - Derby Types to Show – select “All” to show all derby data file directories
 - Select a Derby – highlight which race you want to run and click “Select.”
 - Pick a Division - after selecting the derby to run, this screen is displayed, with the dens in the order you set up in the .div file. Highlight the first race (at the top) and click “Run Selected Division.”
 - Registration Data for xyz Division – make any final changes to the racers (first name, last name, aka name, number, and racing indicator). Select “Save and Continue” to start racing.
- Racing Screens
 - This is the screen that everyone watches during the race.
 - Buttons:
 - Abort Race – ends the race and takes you back to the main menu screen
 - Accept – click this if the race results are valid. Brings up the next race.

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- Re-Run or Edit – if the race results do not match what is on the screen, you will need to re-run the race. Clicking this displays the “Race Results by Lane” window where you can manually change the order or the times (not recommended), re-run the race (recommended), or revert to the original results.
- As rounds are completed, the “Round n Standings” screen will be displayed showing the racers score in the order of first through last, with color coded bars. Click “Continue.” Next the “The following cars are still racing” screen is displayed. Click “Continue.” The “Lane Assignments” screen is then displayed with the race match-ups for the next round. Click “Continue.” This starts the racing for that round.

RVedit software (www.Raceview.com)

- Provides screen based management of RaceVIEW files before race
- Once RaceVIEW is started, do not go into RVedit
- Defaults to the Derby Data folder
- Uses the .div and .rg1 files only
- Make sure RVedit is not running before starting RaceVIEW

TIMER

DT8000 Timer from Newbold Products (www.NewboldProducts.com)

- Timing accuracy is 0.1 milliseconds (0.0001 seconds)
- Maximum race time is 9.9999 seconds
- Supports 1-8 lanes

Laptop configuration

- Disable any programs using the serial port (ie: Palm HotSync)
- Configure port for 1200 bps, 7 data bits, no parity, 2 stop bits, flow control off (can use Windows 2000 HyperTerminal and save configuration for future races)
- Sensor wires are marked 1-4. Make sure they are in the correct lane
- Make sure sensor wires are plugged in to the timer correctly (they can be upside down)
- Start switch attaches to threads on gate
- Timer can run on a nine-volt battery or AC power. Recommend using the AC adapter.
- The red LED above the power switch will light up if on battery power and the battery needs to be replaced.

Set-up and Initialization

- Plug in all sensors, start gate switch, computer cable, and AC adapter.
- Turn POWER on
 - All segments in display will go on
- Press RESET button
 - Display should read “4 Lanes”
 - If only 1-3 lanes are active, proceed to next step to determine which lanes are not active
 - If no lanes are active, display will read “-----”. Re-check all light sensors (is light bridge on?).
- Press RESET button again
 - Display will show a “-“ for each active lane (lanes 1 through 4).
 - If less than four lanes were active from the previous step, this step will show which sensors need attention. Remove the plug from the timer, flip it over and re-insert it. Power off the timer and restart the initialization. If this doesn't work then the sensor may be malfunctioning.
- Press RESET again
 - This starts the timing mode

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FILES

Racer List RG1.xls – List of all racers (MS Excel)

- Start with this file
- Can usually download scout data from one of the Pack management software packages, or update from last years file.
- Converted to .txt file when done, then updated via RVEdit software
- Will be used as input for most other derby files
- Contains:
 - Division
 - Tigers
 - Bear Den 3
 - Webelos I Bison
 - etc...
 - Number
 - Tiger start with 101
 - Wolf start with 201
 - Bear start with 301
 - Webelos I start with 401
 - Webelos II start with 501
 - Last Name
 - First Name
 - Alias
 - Racing name
 - Racing Indicator
 - Either “Y” or “N” indicating if they are racing. Default to “Y”

Race Summary DIV.xls – Division racing summary (MS Excel)

- Used as input into Pack 214 200x.div file
- Sets up division racing order, finalists per division, etc.
- Use one from prior year as a start
- Refer to RaceVIEW software documentation for more information
- Tiger dens are combined into one den and do not race in finals

Registration.xls – Registration sheet for check-in (MS Excel)

- Created from Racer List RG1.xls
- Used after weigh-in as final check-in
- After check-in is closed, update the “Racer is racing” indicator in Rvedit for those not racing
- Print a couple copies before race

Race Program.xls – Hand out for audience (MS Excel) – print 20 copies

- Created from Racer List RG1.xls
- Print before race

Racer Numbers – Peel off car numbers for each racer (MS Word) - *Optional*

- Either print or hand write. Include racer number and den
- Created from Racer List RG1.xls
- After car is registered, locate number and affix to top of car
- Print before race

Pack 214 200x.div – Division information for entire race (Text)

- See RaceVIEW information

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- Required by RaceVIEW to run a race
- Resides in the Derby Data folder

Pack 214 200x.rg1 – Racer information (Text)

- Created from Racer List RG1.xls by saving as a text file
- Required by RaceVIEW to run a race
- Resides in the Derby Data folder

Pack 214 200x.kep – Backup file for the .rg1 file (Text)

- Just in case

RACE DAY - Computer and Timer Set-up

- Set up track.
- Insert sensors in track and run wires back to the timer in the black wire organizers.
- Attach the starting switch in the small bolts on the starting gate. Run wires to timer.
- Connect sensor wires, starting switch and power supply to timer.
- Run power cable with switch to light bridge so it can be turned on and off from the race booth.
- Attach the serial cable to timer and computer.
- Start up laptop and disable any programs using the COM1 port (Palm's HotSync, for example)
- Start RaceVIEW and test everything.
- Connect projector and lower screen. Test.
- Stop RaceVIEW and bring up PowerPoint page.

RACE DAY - Check-in (10:00-1:00)

- Check car for weight, length, width, clearance, BSA wheels and axles, etc. If ok, proceed. If not, return to owner to fix. Racers can check-in anytime between 10:00 and 1:00.
- Find name on registration sheet
- Verify first and last name and racing name. Note any changes on sheet.
- Use highlighter and cross out name
- Find number sticker and apply to car (either pre-printed or computer generated)
- If front of car is not obvious, add an arrow to the sticker or to the bottom of the car pointing in the direction of travel.
- Take car to staging area
- Give racer a blue ribbon
- Have two positions at check-in: one to examine the car, and one to check-in. Only the check-in position should be updating the registration sheet and applying the sticker.

RACE DAY – Final Prep (1:00-2:00)

- Once check-in is closed, get registration sheet, go into RVedit and make any modifications. Try to enforce the rule of a 1:00 deadline for check-in to allow time for final prep.
- If there are only 1-2 racers in a division, they must be combined with another division (limitation of the RaceVIEW software). Or run ghost racers to determine first and second.
- Once all modifications are made, exit out of RVedit. Make copies of RaceVIEW .div and .rg1 files. Open RaceVIEW. Run a simulated race to make sure files are reading properly.
- When done, exit RaceVIEW and delete the Results-text folder and Results-bin folder. Restart RaceVIEW.
- Do final check of sensors, lights, everything.

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RACE DAY – Racing (2:00-5:00)

- At the start of racing, explain the rules and call out any racers that have not checked in. Make any adjustments to the racer list within RaceVIEW.
- Copy down the winners (first thru fourth place) of each division on to the Registration Sheet
- After race is run, validate the race results with the spotters. If ok, accept the race. If not, figure out what happened, correct it and re-run race.
- Before starting the pack finals, check the racer list with the winners noted on the registration sheet.
- Timer and laptop sequence for each race:
 - Complete the timer initialization and RaceVIEW set up.
 - Close the starting gate. This arms the timer for the next race. Timer display is blank.
 - When starting gate is dropped, the start switch opens and the green “Active” light on timer is lit.
 - After all cars cross finish line, lane finish order is shown in the timer display, data is sent to RaceVIEW, and the green light goes off.
 - If less than four cars are racing, or if one or more cars do not cross the finish line under their own power, the sensors can be manually tripped by turning the light bridge off and on.
 - The starting gate can be reset (closed) anytime after the start of the race. The current race is active until the light sensors are tripped at the finish line or the timeout (10 seconds) occurs.
 - Press the RESET button to clear the current results from the timer and to arm the timer for the next race.
 - Look at the race results on the RaceVIEW screen. If ok, click the “Accept” button. This brings up the next race.

RACE DAY – Other Information

- Points are accumulated for each heat (1 for first, 2 for second, 3 for third, 4 for fourth)
- Break out at 9 points, which means everyone gets to race at least three times (once 9 or more points are accumulated, you are out of the race).
- Tigers run as a single division, and do not go on to the pack finals
- Top two finisher per den (Wolf, Bear, Webelos) go on to the pack finals
- Lane assignments are random, except if there is a division run-off, in which case all four cars run on each of the four lanes
- If less than three cars are racing in a heat, the light bridge will be powered off and on to trip the sensors after the cars have crossed the finish the line (normal DT8000 timeout is 10 seconds).
- Tigers usually finish in 30-40 minutes. The rest of the pack takes about 2.5 hours, including finals.
- DO NOT use the manual race editing feature. Some races are decided by several thousandths of a second, and manually modifying the race results would not be good.

FUTURE IDEAS

- Parents race with minimal rules, possibly as a fundraiser?
- Stands and ropes around track
- Secure light bridge to track so bulb position does not change
- Consider brighter bulbs in light bridge
- Consider requiring all four wheels touching the surface
- Prepare list of tips and post to website (clearance, can't use wheels and axles from Michaels, no pointy fronts)
- Develop steps to run a manual race in case the serial connection between timer and laptop is down. Test the old finish line trap to use as a backup.
- Consider a scale that reads to 1/100th or 1/1000th of an ounce (currently scale reads to 1/10th of an ounce)

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- Build a better staging area with plywood
- Consider building a holder for the timer to angle it up for easier viewing
- Add a table skirt for the race booth
- Slide show during check-in of previous year's race?
- RaceVIEW bug: in the timer registration screen, the "Accept" button never activates, but it does save the information.
- Disaster Recover: develop plans to handle loss of laptop, timer, sensors, etc. Can we run a fully manual race? Have a backup laptop?
- Mike Bare has a projector.
- Consider a "Big Board" with all heat winners, since RaceVIEW only shows the current race and winners.

AWARDS

- All scouts get a blue "Grand Prix Pinewood Derby" (#17377) ribbon.
- TIGER AWARDS
 - 1st Place – Cub Scout Canteen (#01036)
 - 2nd Place – Cub Scout Flashlight (#01895)
 - 3rd Place – Cub Scout Toothbrush (#01260)
 - 4th Place – Cub Scout Pencil (#00548)
- DEN AWARDS (for first and second place finishers in each den)
 - 1st Place – Cub Scout Canteen (#01036), and blue first place ribbon
 - 2nd Place – Cub Scout Flashlight (#01895), and red second place ribbon
- PACK AWARDS (top finishers in the pack finals)
 - 1st Place – first place trophy and blue first place ribbon/medallion (#00974)
 - 2nd Place – second place trophy and red second place ribbon/medallion (#00975)
 - 3rd Place – third place trophy and yellow third place ribbon/medallion (#00976)
 - 4th Place – fourth place trophy
- BEST DESIGN AWARD
 - Cub Scout Canteen (#01036)
- MOST SCOUT LIKE
 - Cub Scout Canteen (#01036)

**** Trophies need to be ordered 2 weeks in advance from Victory Trophy (704-333-6641), just mention Pack 214 and they have the info. Other awards can be purchased at the Scout store on Westinghouse Blvd.

FOOD

- 30 large pizzas from Mario's Pizza (704-847-4884). Have Mario's cut them into 12 pieces. They will provide plates and napkins.
- Two 2-liter drinks from each den
- Cups

VOLUNTEERS

- Emcee – someone to call the race (usually the Cubmaster)
- Set up – to assemble the track and set up computer (4-6 people)
- Registration – vehicle inspection and sign-in sheet (2 people)
- Starters – positions cars on track and starts each heat (2 people)
- Car Runners – shuttle cars from finish line to starting line or staging area (2 people)