Cascade Sports Car Club
Road Rally School 2020

What is a Cascade road rally? (RRR front cover)

Time-speed-distance (TSD) road rally – a rules-based game of precise timekeeping and navigational course following, held on open public roads. Cascade road rallies usually include "tricks and traps" (more on that later).

Organizers provide rules of the game (RRRs), a start location, a rally route (route instructions), timing stations (passage controls), and an ending location.

An entry team consists of a vehicle, a driver, a navigator, and a smartphone running the Competitor GPS app.

Object: Complete the rally route on course and on time.

Getting ready (RRR 1)

- Read the rules.

- Prepare your vehicle (adequate fuel, clean windows, good tires).

- Prepare your team (roles, communication, clipboard, pens/pencils).

- Install the Competitor Richta GPS Checkpoints app and register for the event with your assigned car number.

- Set the smartphone (running the Richta app) to atomic clock time. You will time yourself out from outmarkers as directed during the rally.

- Arrive early at start location.

- Note official signs displayed near registrar.

- Complete registration process including vehicle self-inspection. Sign the insurance waiver.

- Affix car number on passenger side inside window.

- Examine route instructions. Attend informational meeting.

- Drive to the outmarker about one minute before your start time. Zero your odometer. Depart at your start time by following the route instructions.

Odometer calibration (RRR 1.2)

The route instructions begin with an odometer calibration zone so you can "synchronize" your distance measuring device (odometer). Compare your odometer to official mileage so you'll know how to adjust speed and distance for your odometer. **NRI 1-10**

Passage Controls (RRR 1.3)

As you drive the rally route, you'll encounter unmanned passage controls where the exact time that you pass the timing location will be recorded by the Richta app. The passage control marks the end of a timed section of the event – a leg.

Moments after you pass the control, your smartphone will sound a tone and display your arrival time, your leg score, and whether you were early or late. Your arrival time is your start time for the next leg, so you should continue rallying on time until you reach the next restart point as identified in the route instructions. There are no controls for one mile after each time-of-day restart point.

Passage controls may be indicated in the route instructions. For example, **NRI 18** is executed at OM 11.93. Then there's a passage control (PC 3). Followed by **NRI 19** which is executed at OM 12.94. So, you know there's a passage control between OM 11.93 and OM 12.94 but you don't know precisely where. Passage controls are not identified by a traditional checkpoint sign.

Route Controls (RRR 1.4)

You may encounter route controls, which may be on course or off course. Pull up to the control car beyond the route control sign. Follow the instructions provided, including a pause for stopping at the control. Penalty points for missing an on course route control or for visiting an off course route control will be added to your final score.

Time Allowance (RRR 1.5)

If you are delayed due to road blockage, slow traffic, getting lost, nature call, or any other reason, do not speed to try to make up the lost time. You may submit a time allowance without any penalty. (See the Richta app instructions for entering a time allowance.)

Scoring (RRR 1.7)

Your score is a measure of how well you were able to drive the course exactly on time. Each second that you arrive early or late on each leg is worth one penalty point. A perfect leg score is zero, arriving exactly on time. The maximum points per leg is 120. Lowest total score (total of all penalty points) wins, like golf.

Staying on course

A TSD road rally is a contest of precision – being in exactly the right place at exactly the right time. The winner is the team most able to run the course in exactly the correct amount of time.

However, it will do you no good to be on time if you're not in the right place. Novice ralliers find most success by focusing on course following, and not worrying too much about staying on time.

Rally survival tips:
1. Stay on the road
2. Stay on course
3. Stay on time

Staying on the rally course requires a combination of accurately following the route instructions and accurately following the main road. To be a successful rallier, you need to know how to follow the route instructions, how to follow the main road, and when to do which.

Rally roads (RRR 2.2)

Cascade TSD road rallies are run on open public roads. Road surface may be paved or unpaved; you may be expected to recognize the difference. Do not consider private or dead-end roads to be valid rally roads.

Route instructions (RRR 4)

Route instructions may be written out plainly in words in sentences, cryptically encoded in abbreviations and defined terms, and/or drawn in diagrams and pictographs.

Route instructions tell you <u>what to do</u> and <u>where to do it</u>. (RRR 4.2, 4.3)

<u>What to do</u>:

- Deviations (RRR 4.5) – L, LEFT, R, RIGHT, S, STRAIGHT, TURN. A change in course off the main road (more on that soon). **NRI 6**

- CAST (RRR 6.5) – Change average speed to. **NRI 13**

- PAUSE (RRR 6.19) – **NRI 13**

<u>Where to do it</u>:

- Sign (RRR 5.1) – All CAPS, in quotation marks, exact as close as graphically reasonable. **NRI 9, NRI 10**

- Landmark (RRR 4.4) – Physical object identified by a sign. All CAPS, not in quotation marks, not in Glossary. **NRI 11**

- Official mileage (RRR 4.6) – **NRI 20**

- Term defined in Glossary (RRR 4.3) – Examples: STOP, SIGNAL, T. **NRI 12**

Types of route instructions (RRR 4.1)

- Numbered (NRI) – Complete in ascending numerical order.

- Note – Unnumbered route instruction, active from introduction until canceled. Independent of and may overlap NRIs. Executed each time the action point is encountered. **NRI 11, NRI 17**

- Supplemental – Provided at route controls. Complete in the order presented before resuming NRIs.

Rally route (RRR 2.1)

To follow the intended rally route, take the following actions in the order listed:

- Execute emergency directions provided by a rally official.

- Execute a supplemental route instruction provided at a route control.

- Execute a note route instruction.

- Execute a numbered route instruction.

- Follow the main road.

> **Before you can finish first, first you must finish.**

Main road (RRR 3)

In Cascade's TSD Road Rally world, a main road exists at every intersection. The main road is the rally route you would follow if you didn't have any route instructions. In fact, you can execute a route instruction containing a course directing action (aka deviation) only when it takes you off the main road (usually). There are exceptions to every rule, but this is how it usually works.[1]

Knowing where the main road goes at every intersection and knowing how to follow the route instructions are most critical to finishing any event. Before you can finish first, first you must finish. (Make sure they tell where the finish is before you leave the start.)

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[1] Exceptions: Execute a deviation that follows the main road when the deviation is labeled MBCU. (RRR 6.14) Execute a deviation that follows the main road when the instruction is accompanied by official mileage. (RRR 4.6)

The main road is the single road leaving the intersection other than the one upon which the intersection was approached. To determine that single road leaving the intersection, apply the Main Road Determinants, in order, one at a time. If the first one doesn't define a single route leaving the intersection, then move to the next one.

Main Road Determinants (MRDs)

1. ONTO

2. TOWARD

3. PROTECTION

4. SURFACE

5. STRAIGHT AS POSSIBLE

6. LEFTMOST

Tricks and traps

What is a rally trap? A trap is a planned opportunity to earn penalty points.

A trap may take you on a planned off course route that rejoins the on course route. Or a trap may entice you into making incorrect speed changes or pauses. The penalty for falling for a trap could be as little as a small fraction of a minute or as great as a max for the leg.

Traps exist in the context of the rules for that event. For the following examples, the relevant rules are provided.

- Number switch (RRR 4.1)

    Rule: Complete numbered route instructions in ascending numerical order.

    Trap: The route instructions are out of order.

    Example: **NRI 14**

    To stay on course: Check the sequence of the route instruction numbers. To be sure, check them in reverse order.

- Main road deviation (RRR 4.5)

    Rule: A deviation is a change in course off the main road.

    Trap: An apparent opportunity to execute an NRI containing a deviation follows the main road so can't be executed there.

    Examples: **NRI 22** and **NRI 35-36**

    To stay on course: At each intersection, determine where the main road goes. Then try to apply the NRI. If the NRI follows the main road, it can't be executed there. Follow the main road and continue looking for an opportunity to execute the NRI.

- Spelling (RRR 5.2)

    Rule: When quoted, a sign will be exact with respect to spelling…

    Trap: The sign is quoted incorrectly.

    Example: PAUSE 30 seconds at "MACDONALD" (sign is "MCDONALD")

    To stay on course: Make sure the sign matches the route instruction.

- Mileage (RRR 4.1)

    Rule: An NRI is active (available to be initiated) when all parts of the preceding NRI have been completed.

    Trap: An apparent opportunity to execute the next NRI occurs prior to completion of the current NRI.

    Example: Watch for bicycles next one mile.

    To stay on course: Complete the mileage or duration before the next NRI.

Extra credit:

- CAST down / CAST up (RRR 6.5)

    Rule: CAST – Change average speed to.

    Trap: Don't jump to a conclusion before carefully examining the instruction and thinking it through. You've fallen for the trap if you assume that, after decreasing your speed by 100%, increasing your speed by 100% will restore you to your original speed.

    Example:

    52.   R at STOP. CAST 40.

    53.   At "MAIN" reduce your speed by 100% for 0.25 minutes, then increase your speed by 100% for 0.25 minutes, then CAST 45.

    To stay on course: Reduce your speed by 100% which is zero, so you stop and pause for 0.25 minutes. Increasing zero by 100% is still zero, so you pause another 0.25 minutes. Then you leave at a speed of 45.

More traps:

- CAST at first STOP. CAST at second STOP. (RRR 4.1, last paragraph)

- PAUSE at "STOP" then R.
  PAUSE at STOP then R.

- TURN at CROSSROAD. (RRR 6.6)

- TURN at SIDEROAD (at crossroad). (RRR 6.22)

Trap hints – Some terms that alert you to a possible trap:

- OR (RRR 6.18) – An instruction containing an OR may be there to support two routes, one on course and one off course.

- ITIS (If There Is Such) (RRR 6.12) – An ITIS instruction may be executed or maybe not, depending on which route you took or on your interpretation of the instructions.

- TURN (RRR 6.29) – Why not just say L or R instead of TURN? Because maybe on course will approach the intersection from one side while off course will approach from the other side. Heads up!

Staying on time

Strategies for staying on time

- Drive SOP accurately, drive faster than CAST to make up for slower sections and stops; count out pauses and leave a little early

- Get more accurate distance measures with distance-measuring device interfaced with vehicle or distance measuring GPS odometer

- More accurate TSD calculations using electronic calculator or laptop (no direct odo interface)

- Rally computer (est $1,000) or laptop with direct odo interface

- GPS app (est $6) – same functionality as rally computer with less cost and more ease of use (try Richta Simple Rally Computer) - run on different phone than Richta Competitor app

Odometer correction factor (RRR 7.4.1)

Use the following formulas to adjust your speed to correct for any difference between your vehicle's odometer and Official Miles.

Odometer correction factor = Your odometer miles / Official Miles
Corrected speed = CAST X Odometer correction factor

Example: Your odometer miles = 9.1, Official Miles = 10.00, CAST 45
Odometer correction factor = 9.1 / 10 = 0.91
Corrected speed = 45 X 0.91 = 41 mph

If your odometer miles are <u>less</u> than Official Miles, you must drive <u>slower</u>.
If your "odo" is <u>greater</u> than Official, you must drive <u>faster</u> to stay on time.

Why calculate?

- To be more accurate.

- To improve your score.

- Anything else is just a guess.

TSD timekeeping (RRR 7.4.2)

Use the TSD timekeeping formula to calculate precisely how long it should take to travel a specific distance at a specific average speed. If you calculate and log interval times and keep track of cumulative time, then you you'll know exactly what time it should be (or should have been) when you pass a specific reference.

**Downloading the 'Competitor - Richta GPS Checkpoints' app
(aka Richta app)**

Before the day of the event, download the app and register your car number. If you encounter any problems, please contact the Geargrinders Chair at 503-260-9472.
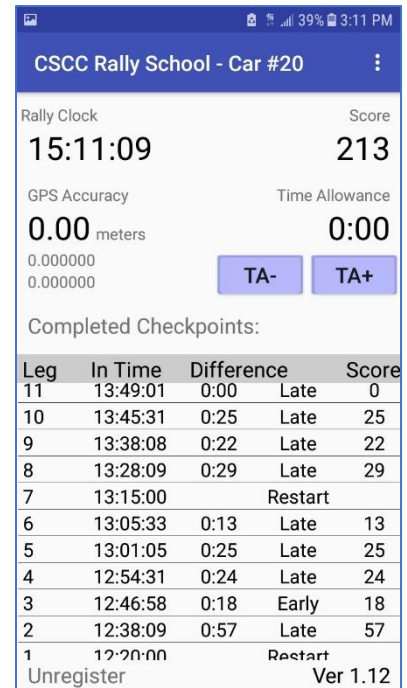
On an Android smartphone

Go to the Google Play Store and download the 'Competitor - Richta GPS Checkpoints' app. There is no cost to you for this app.

Press "Allow" to grant permission to access your device's location. Open the app. Accept the Privacy Policy. You'll be asked to select an event. Choose the event name provided to you (all Cascade events start with 'CSCC'). Enter the event password: 'cscc' and press 'Check Password'. Then enter the car number assigned to you and a password that you create for this event. (Remember your password in case you need to log back in to this event.) Press 'Save'.

Then press "Add" when it appears. You should see a screen that looks similar to this (but with no data yet). Confirm that you see "Ver 1.12" in the lower right corner (as of 2/15/20). You're all set.

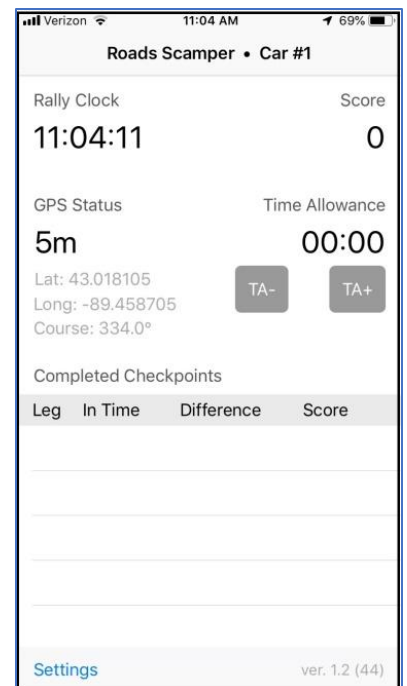P.S. See current results by downloading and running the 'Scoreboard - Richta GPS Checkpoints' app.

			🖼	🔋 ⁵⁷ ⁴ 39% 🔋 3:11 PM
CSCC Rally School - Car #20				⋮

Rally Clock			Score
15:11:09			**213**

GPS Accuracy		Time Allowance
0.00 meters		**0:00**
0.000000		
0.000000	TA-	TA+

Completed Checkpoints:

Leg	In Time	Difference		Score
11	13:49:01	0:00	Late	0
10	13:45:31	0:25	Late	25
9	13:38:08	0:22	Late	22
8	13:28:09	0:29	Late	29
7	13:15:00		Restart	
6	13:05:33	0:13	Late	13
5	13:01:05	0:25	Late	25
4	12:54:31	0:24	Late	24
3	12:46:58	0:18	Early	18
2	12:38:09	0:57	Late	57
1	12:20:00		Restart	

Unregister			Ver 1.12

On an Apple smartphone

If you're using an Apple smartphone, go to the Apple App Store and download the "Competitor Richta Checkpoint" app. There is no cost to you for this app.

Open the app. Choose the event name provided to you. On the next screen, enter your car number. The next password is one that you create for yourself for this event. Create one and enter it.

Press "Done". Press "Continue". Press "Submit Info". Choose "Always Allow". You should see a screen that looks similar to this. Confirm that the lower right corner reads "ver 1.2 (44)" (?). You're all set.

▪ ⧫ Verizon 🔋	11:04 AM	⬆ 69% 🔋
	Roads Scamper • Car #1	

Rally Clock		Score
11:04:11		**0**

GPS Status		Time Allowance
5m		**00:00**
Lat: 43.018105		
Long: -89.458705	TA-	TA+
Course: 334.0°		

Completed Checkpoints

Leg	In Time	Difference	Score

Settings		ver. 1.2 (44)

Using the Richta app (on any phone)

On the day of the event, turn off any other apps (notifications, etc.) and open the Richta app. Confirm that the app is running. You will know that the app is running by noticing that the time-of-day clock is running.

You cannot run any other apps on the device that is running the Richta app during the rally. If you are planning to use any other app during the rally, you'll have to do so on a different device. Make sure the Competitor app has Location and Storage permissions turned on and that the Location Service (i.e., GPS) is turned on.

Your phone will NOT need to have cell phone service during the rally in order for this app to work. The app will have downloaded all necessary information prior to starting the rally. During the rally it only needs a GPS signal.

Once the app is set up, you do not need to interact with it. The app displays your arrival time and leg score soon after you pass a control. The only reason you might interact with the app is to enter time allowances.

You must notice if the app stops. If the app should stop during the rally, pull off the road in a safe location, reboot the app and then continue to rally. Take a time allowance if necessary. The app will resume where it left off. No data will be lost. If you pass a control while the app is not running, you will not be timed at that control and you will be scored as a max. It is your responsibility to make sure that the app remains visible on your smartphone during the rally. If your phone is displaying something other than the Richta app, it will not record your arrival time at controls.

This app uses a lot of power due to its use of GPS. You should plan to have your smartphone connected to a power supply during the rally, otherwise you may run out of battery during the rally.

Time Allowance

Submit a time allowance by pressing the TA+ button on the Richta app. The first button press creates a 10-second time allowance. The second press creates a 20-second time allowance. The third press creates a 30-second time allowance. Each additional press adds 1 minute to your time allowance up to a maximum of 19 minutes 30 seconds (19 ½ minutes).

Pressing the TA- button will remove time from your time allowance by the same increments.

Use a time allowance when you are late to leave a time-of-day restart (CZT). For example, you are late to leave a CZT by 2 ½ minutes. You enter a time allowance for 2:30. Later you are timed at a passage control. The time allowance is applied to your score for the leg just completed. You are automatically on time as you start the new leg, so the time allowance reverts to zero.

The other time to use a time allowance is when you become late during a leg and are unable to safely make it up. Again, the time allowance applies to the current leg only and reverts to zero at the next control or CZT.

Since passage controls between CZTs are time-in = time-out, do not reenter a time allowance for the next leg. That would earn you a max. However, if you become delayed again in a subsequent leg, you can take another time allowance.

Morseburg's Rule: When it is not necessary to enter a time allowance, it is necessary to not enter a time allowance.

Cascade Sports Car Club's 2020 Rally School Final Exam

Are We There Yet?

by Monte and Victoria Saager

CZT	**OM**	**NRI**	**Route Instruction**
12:00:00	0.00	1.	Right (east) at "STOP" on COMMERCIAL at MAIN. Begin odometer calibration zone. You have 15 minutes to complete the next 10 NRIs.
	0.47	2.	S at STOP ONTO WEST UNION.
	1.67	3.	"JACKSON SCHOOL"
	2.41	4.	"JACKSON QUARRY".
	4.53	5.	"HELVETIA RD".
	5.30	6.	R at "CENTURY".
	5.90	7.	L on JACOBSON
	6.17	8.	R on CROENI.
	6.58	9.	"PEACOCKS"
	7.039	10.	End odometer calibration zone at "STOP" at WAGON. CAST 30. L MBCU.
	7.30	11.	R at CROENI.
			Introduce NOTE A: PAUSE 30 seconds at "NO THRU TRUCKS".
	7.99	12.	R at STOP on CENTURY.
	8.23	13.	R at WEST UNION. PAUSE 30 seconds. CAST 40.
			PC2
		15.	TURN at BENDEMEER. CAST 23.
		14.	TURN at OLD PASS RD. CAST 22.
		16.	R at STOP. PAUSE 1 minute. CAST 45.
	10.82	17.	R on HELVETIA. PAUSE 30 seconds. Cancel NOTE A.
	11.93	18.	R on PHILLIPS. CAST 40.
			PC3
	12.94	19.	L on DICK. CAST 23.

CZT	OM	NRI	Route Instruction
	14.856 /0.00	20.	L at "STOP" at T. MBCU. PAUSE 30 seconds. CAST 40.
			PC4
	0.76	21.	R at STOP.
		22.	L on GERMANTOWN. PAUSE 30 seconds. ITIS.
	3.15	23.	CAST 38 at "STOP" at KAISER. PAUSE 15 seconds.
	3.64	24.	S on OLD GERMANTOWN. CAST 22.
			PC5, PC6
	5.86	25.	S at YIELD. MBCU.
	6.03	26.	L at BLINKER on SKYLINE. CAST 35.
	10.31	27.	S at "STOP" at BLINKER. MBCU.
12:55:00	10.360 /0.00	28.	R at "STOP" on SKYLINE. CAST 35.
	0.56	29.	CAST 42 at "END SPEED ZONE".
	3.69	30.	L on BECK. CAST 32.
	6.50	31.	L on JOHNSON
			PC8
	10.388 /0.00	32.	R at "STOP" on HELVETIA. PAUSE 30 seconds. CAST 40.
	0.25	33.	R at STOP. CAST 23.
			PC9
	2.21	34.	CAST 45 at "STOP".
		35.	L AFTER "T".
		36.	L on WEST UNION. PAUSE 30 seconds. ITIS.
	5.03	37.	L on JACKSON QUARRY. CAST 30.
			PC10
	6.13	38.	R on HELVETIA. CAST 40.
			PC11
	8.16	39.	End at the HELVETIA TAVERN. Come inside and join us.

CSCC 2020 Rally School Rally
Are We There Yet?

Challenge #1 – Getting Out The Door

Which NRI did you execute 15 minutes after your start time? The next 10 NRIs following NRI 1 ends with NRI 11. Although the odometer calibration zone ended at NRI 10, the 15 minutes ended at NRI 11. (Odo trap) Leaving NRI 10 rather than NRI 11 after 15 minutes makes you about half a minute late at PC2 (Leg 2).

Challenge #2 – The Number Switch

NRIs 14 and 15 were reversed in the route instructions. You should have executed the OLD PASS NRI prior to the BENDEMEER NRI. If you used them in the wrong order, you missed using NOTE A, making you half a minute early at PC3 (Leg 3).

Challenge #3 – Follow The Main Road

NRI 22 should not have been used as it would take you the same direction as the main road. Using NRI 22 makes you half a minute late at PC5 (Leg 5).

Challenge #4 – The Edge Of Protection

The intersection following the "T" in NRI 35 appears to be a main road right by protection if you miss seeing the knife-edged stop sign on the right. Using NRI 35 here makes you 30 seconds late at PC10 (Leg 10). On course teams used NRI 35 at West Union and did not use NRI 36.

CSCC 2020 Rally School Rally Calcs

NRI	Begin mile	End mile	Distance	Speed	Factor	Interval Time	Cumulative Time		CZT	Time in Seconds	Leg Time
1 - 11	0.000	**7.300**	**7.300**	0	0.000	15.000000	15.000000		**12:20**	20.00	NS
11 - 13	7.300	8.238	0.938	30	2.000	1.876000	16.876000				
13 - PC2	8.238	8.404	0.166	30	2.000	0.332000	17.208000	PC2	12:17.20	12:17:12	17:12
PC2 - 14	8.404	8.825	0.421	40	1.500	0.631500	17.839500				
NOTE A							0.500000	18.339500			
PAUSE @ 13							0.500000	18.839500			
14 - 15	8.825	9.176	0.351	22	2.727	0.957273	19.796773				
15 - 16	9.176	9.625	0.449	23	2.609	1.171304	20.968077				
PAUSE @ 16							1.000000	21.968077			
16 - 17	9.625	10.828	1.203	45	1.333	1.604000	23.572077				
17 - 18	10.828	11.930	1.102	45	1.333	1.469333	25.041410				
PAUSE @ 17							0.500000	25.541410			
18 - PC3	11.930	12.467	0.537	40	1.500	0.805500	26.346910	PC3	12:26.34	12:26:20	9:08
PC3 - 19	12.467	12.949	0.482	40	1.500	0.723000	27.069910				
19 - 20	12.949	14.856	1.907	23	2.609	4.974783	32.044693				
PAUSE @ 20							0.500000	32.544693			
20 - PC4	0.000	0.634	0.634	40	1.500	0.951000	33.495693	PC4	12:33.49	12:33:29	7:09
PC4 - 23	0.634	3.150	2.516	40	1.500	3.774000	37.269693				
PAUSE @ 17							0.150000	37.419693			
23 - 24	3.150	3.633	0.483	38	1.579	0.762632	38.182325				
24 - PC5	3.633	4.163	0.530	22	2.727	1.445455	39.627779	PC5	12:39.62	12:39:37	6:08
PC5 - PC6	4.163	5.721	1.558	22	2.727	4.249091	43.876870	PC6	12:43.87	12:43:52	4:15
PC6 - 26	5.721	6.038	0.317	22	2.727	0.864545	44.741416				
26 - 28	6.038	10.360	4.322	35	1.714	7.409143	52.150558				
			25.216			**52.150558**					
CZT							55.000000	55.000000	CZT7	**12:55:00**	12:55:00	NS
27 - 29	0.000	0.566	0.566	35	1.714	0.970286	55.970286				
29 - 30	0.566	3.696	3.130	42	1.429	4.471429	60.441714				
30 - PC8	3.696	7.553	3.857	32	1.875	7.231875	67.673589	PC8	1:07.67	1:07:40	12:40
PC8 - 32	7.553	10.388	2.835	32	1.875	5.315625	72.989214				
PAUSE @ 32							0.500000	73.489214			
32 - 33	0.000	0.251	0.251	40	1.500	0.376500	73.865714				
33 - PC9	0.251	1.560	1.309	23	2.609	3.414783	77.280497	PC9	1:17.28	1:17:17	9:37
PC9 - 34	1.560	2.214	0.654	23	2.609	1.706087	78.986584				
34 - 37	2.214	5.039	2.825	45	1.333	3.766667	82.753251				
37 - PC10	5.039	5.788	0.749	30	2.000	1.498000	84.251251	PC10	1:24.25	1:24.15	6:58
PC10 - 38	5.788	6.131	0.343	30	2.000	0.686000	84.937251				
38 - PC11	6.131	7.954	1.823	40	1.500	2.734500	87.671751	PC11	1:27.67	1:27:44	3:29
PC11 - 814	7.954	8.162	0.208	40	1.500	0.312000	87.983751				
			18.550			**87.983751**					
			43.766			**1:27:59**					