



TSD Rally School

Rally Sport Region PCA

May 2025

Credit to Jack Stephensen and Rik Larson – content is liberally based on their Parade Rally Schools!



Goals for today's discussion

- Brief intro and overview of TSD Rallying
- Route following examples, discussion
- Answer questions

Basics – what is a time-speed-distance rally?



- It is not a race. It is a contest where the intent is to be the best at following a specific set of instructions to arrive at specific points at exactly the right time.
- Time – speed – distance
 - The route instructions tell you the average speeds
 - The route instructions define the route (which sets the distance)
 - If your actual time is different from the ideal time, you “earn” a penalty – one point for each second early or late.
- The winning team is the one with the lowest total penalties over the full route.



Rally is a game

- A rally is a game– the rallymaster comes up with what we hope is a fun challenge, and the rallyists compete to win
- Like any game, there are rules and instructions so everyone knows how to play
 - **General Instructions** – Basic rules and instructions for all rallies.
 - **Supplemental General Instructions** – Additional or modifications for a specific event.
 - **Special Instructions** – Last-minute changes or important instructions on the day of the event.
 - **Route Instructions** – The specific instructions you follow to navigate the rally.



Structure of a TSD Rally

- The rally is broken up into individual sections called legs.
- Each leg has a starting checkpoint where timing starts and an ending checkpoint where timing for that leg ends.
 - The end of one leg may be the start of the next one.
- In RSR rallies, timing resets at the start of each leg— once you pass the ending checkpoint, there's nothing you can do about that leg.
 - 10 seconds early on Leg 1, 10 seconds late on Leg 2 = 20 points



Don't forget - this is for fun!

- It is common to make mistakes or get confused/frustrated during a rally. Don't let a mistake ruin the rest of the rally!
- Keep your priorities straight:
 - Stay safe
 - Be nice to your partner
 - Have fun

What do I need to bring?

- Smartphone (or tablet) to run the Richta app
- Phone mount or holder. The phone running the app needs to have clear view of the sky through the windshield.
- Phone charging cable – the rally will be around two and a half hours long, you don't want the battery to die.
- Sense of Humor!



What do I need to bring?

- Optional but highly recommended:
 - **Second phone** that isn't running the rally app. Useful for communicating with the rally masters if any problems, taking pictures during transit zones, etc. Make sure the ringer is on and you can hear it!
 - **Clipboard** for holding the route instructions
 - **Pencils and/or Pens** to check off instructions as complete, make notes, etc. (note—you will drop at least one between the seats. You were warned!)
 - **Highlighter** to emphasize important parts of the instructions
 - **Stopwatch** is helpful for timing delays, pauses, etc., but you can also use the clock on the Richta app
 - **Post-it notes** (for reminding the stupid driver what the stupid CAST is)



How to Follow the Route

- The Route Instructions tell you how to follow the route and how fast to go
- Every intersection presents a choice– if the RM’s do their job correctly, there is always one correct choice, provided by the instructions.



How to Follow the Route

- Basic concept
 - As you drive down the road, at every opportunity that presents to change direction, a decision needs to be made as to the direction to take.
 - If the RM has done their job correctly, there will always be a correct thing to do at every intersection, provided by the instructions.




Route Instructions

- Instructions come from several sources:
 - **Route Instructions.** The main list of instructions telling you where to go and how fast. Provided just before the start of the rally.
 - **Special Instructions.** Last-minute changes or alerts; these override the RI's if in conflict (for instance, may tell you to avoid a section due to last-minute construction). No attempt to trick you here!
 - **Main Road Rules.** These tell you what to do when there is no other instruction. Mostly there to simplify the Route Instructions– by providing a few simple rules we don't have to give so many specific instructions.
 - ALWAYS MAKE SURE YOU KNOW THE MAIN ROAD RULES!!! You won't realize you need them until you get in a situation with no clear route instruction– by then it's too late!



Route Instructions – Basics


- List of instructions provided in numerical order
- Must be performed in numerical order unless instructed specifically otherwise
- Must be performed as soon as they can

RI #	Trip Odo (Reference)	Text Instruction	Sign References
1	0.0	TRANSIT ZONE. Start of Odometer Leg. Reset trip odometer at exit of parking lot. Turn right onto CARTER.	
2	3.6	Turn right onto WANGLER CROSSING	
3	10.4	End odometer check at WOOLFOLK. Reset trip odometer. CAST 40. END TRANSIT ZONE.	
4		CAST 35 at second "Pass With Care"	
5		CAST 30 at HOWARD. Follow the Lined Road.	
6		PAUSE 20 and Right at STOP.	
7		Left at STADIUM	
8		Right at STOP (ZURBRUGG). CAST 53	
9		Right at STOP.	
10		CAST 45 at No U-Turn Sign	
11	11.6	BEGIN TRANSIT ZONE at "Smith". Take no more than 20 minutes to reach RI #13.	
12	12.4	Left on REIN.	
13	13.2	END TRANSIT ZONE at MORRIS. Restart at top of the minute. CAST 25	
14		Observe "Mallory". CAST 23 for 0.2 miles.	
15		CAST 25	



Route Instructions – Advanced

- Don't move on to the next instruction until you have fully completed the current one
 - Example RI #14. Don't start RI #15 until you've observed "Mallory" AND completed the next 0.2 miles.
- Are self-contained; any distance, time, count, etc. in the RI is since the beginning of the RI unless specifically noted.
 - Example RI #4. Start counting "Pass With Care" signs after completing the previous instruction
- RI can combine multiple directions into single numbered instruction.
 - Example RI #8, RI #14. Do the steps in the order listed (Observe "Mallory" THEN CAST 23).

RI #	Trip Odo (Reference)	Text Instruction	Sign References
1	0.0	TRANSIT ZONE. Start of Odometer Leg. Reset trip odometer at exit of parking lot. Turn right onto CARTER.	
2	3.6	Turn right onto WANGLER CROSSING	
3	10.4	End odometer check at WOOLFOLK. Reset trip odometer. CAST 40. END TRANSIT ZONE.	
4		CAST 35 at second "Pass With Care"	
5		CAST 30 at HOWARD. Follow the Lined Road.	
6		PAUSE 20 and Right at STOP.	
7		Left at STADIUM	
8		Right at STOP (ZURBRUGG). CAST 53	
9		Right at STOP.	
10		CAST 45 at No U-Turn Sign	
11	11.6	BEGIN TRANSIT ZONE at "Smith". Take no more than 20 minutes to reach RI #13.	
12	12.4	Left on REIN.	
13	13.2	END TRANSIT ZONE at MORRIS. Restart at top of the minute. CAST 25	
14		Observe "Mallory". CAST 23 for 0.2 miles.	
15		CAST 25	



Course Directions

- Tell you “What” to do and “When” to do it
 - Left at STOP
 - After “Green” CAST 45



Course Directions – “What”

- CAST – Change Average Speed To
- Directional – Left, Right, Straight, etc. or similar (“Bear left”, “Turn left”, etc.)
- Route Following – Straight As Possible, Follow the Lined Road, etc.
- Instructional – Pause, Observe, etc.
 - If there is no instruction, this means “Observe” – just wait until you see the thing, then move to the next RI
 - These are all the same
 - 1 Observe “Green”
 - 2 CAST 40
 - 1 “Green”
 - 2 CAST 40
 - 1 “Green” CAST 40
 - 1 CAST 40 at “Green”



Course Directions – “When”

- Relation – At, After, On, etc. (Turn left **after** “Brown”, Right **on** BROWN, etc.)
- Reference
 - “Sign” – relates to words on a posted sign. Always listed in quotes
 - Left after “Brown”
 - LANDMARK – relates to an actual thing– usually a road, but can also be a building, bridge, etc. Always listed in CAPS.
 - Left on BROWN
 - (clarification) – added information to avoid confusion. Listed in parenthesis. Never intended to trick.
 - Left after “Brown” (BROWN-FORMAN RD)



Speed Instructions

CAST

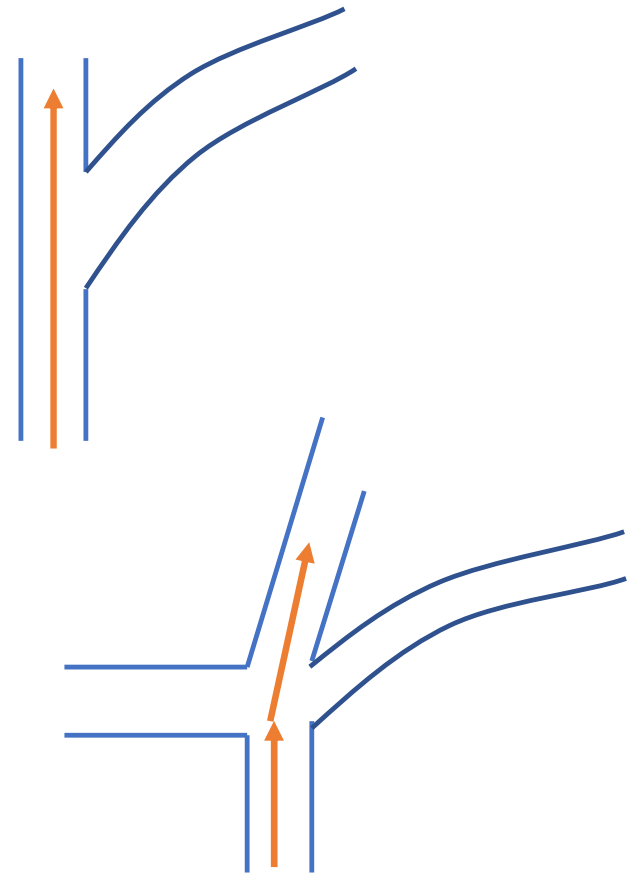
- **C**hange **A**verage **S**peed **T**o
 - CAST 45 means to change your average speed to 45 MPH
- This is the “Speed” component of the Time-Speed-Distance
- Remember that it is more important to stay on course than it is to maintain speed!
- Tip: CAST changes frequently, and drivers have a tendency to forget what the CAST is. A suggestion is for the navigator to write the current CAST on Post-it note and stick it on the steering wheel or other spot where the driver can easily see it.



Where to go

- **Straight as Possible**

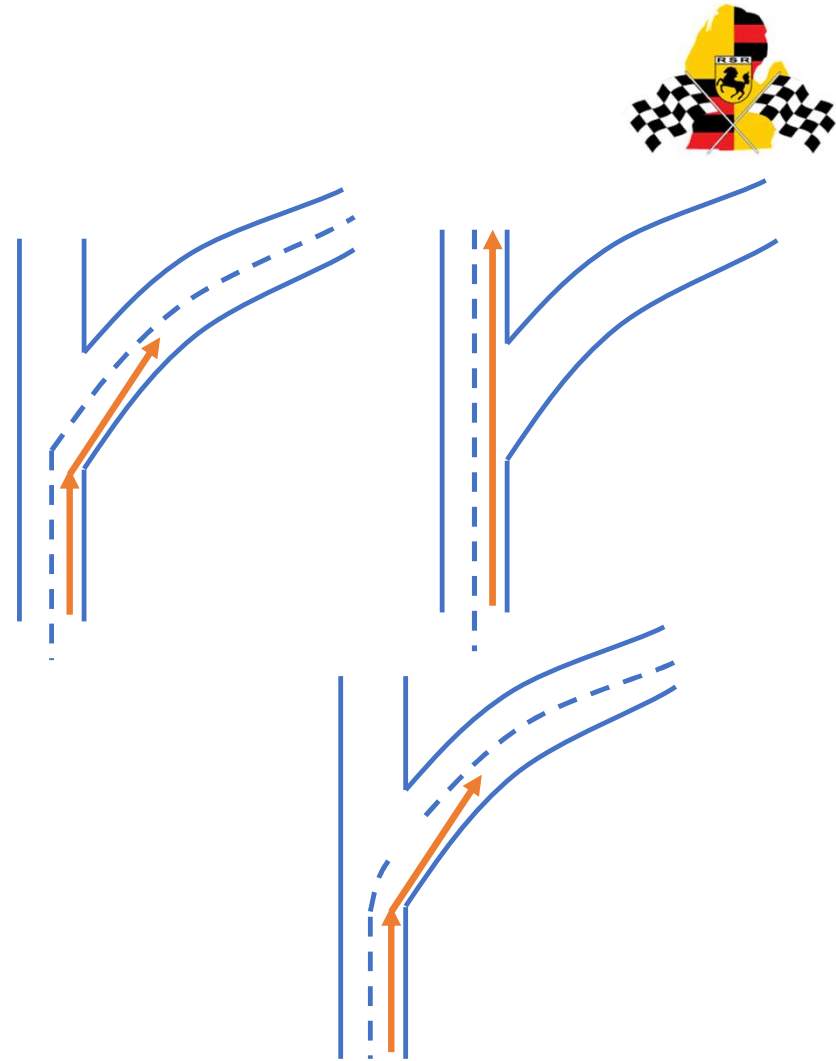
- Most common rule– just says unless you are given some other instruction, go the straightest route possible
- This may not always be actually straight– the rule is “straight as possible”
- May not keep you on the same named road



Where to go

- **Follow the Lined Road**

- Follow the route indicated by the marked centerline, even if it doesn't go straight
- Follow the indicated direction even if the centerline is broken
- May not keep you on the same named road

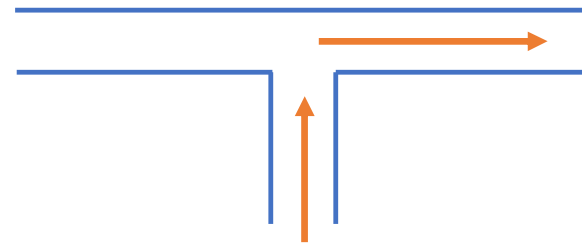
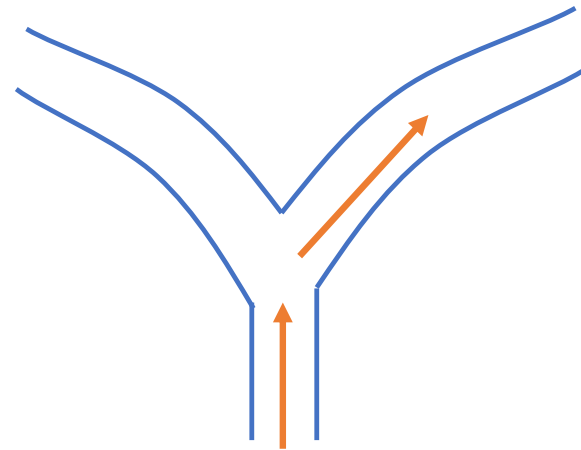




Where to go

- **Right at T or Y**

- Direction to follow at a T or Y (it is not possible to go “straight as possible” at a T or Y)
- Can also be **Left at T or Y**

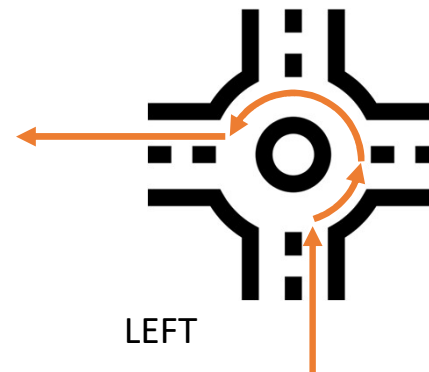
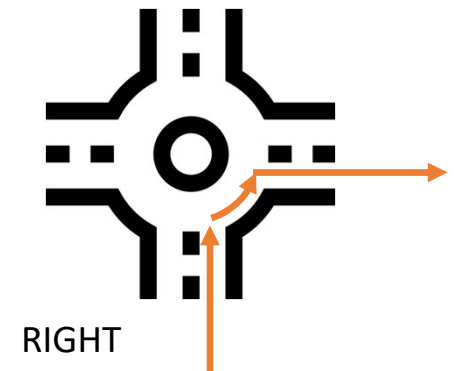
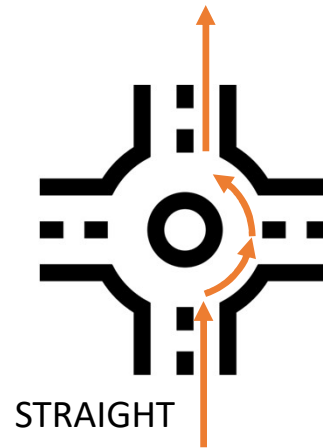




Where to go

- **Roundabouts**

- Roundabouts are referenced like normal intersections
- There is no attempt to confuse at roundabouts
- This route does not contain any complicated roundabouts!





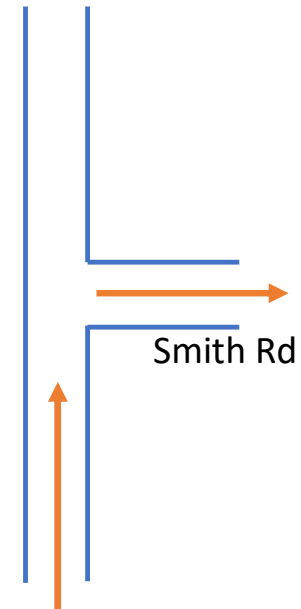
Examples

1. Right at 1st Opportunity

1. Right

1. Right on SMITH

1. Turn on SMITH





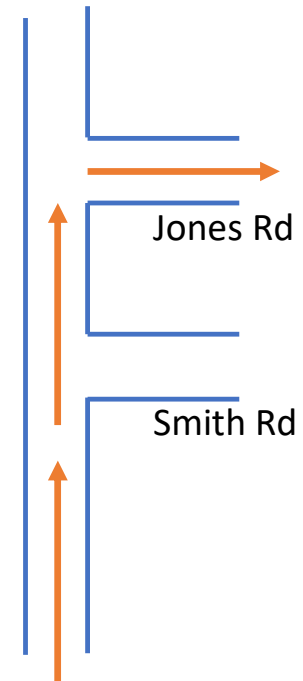
Examples

1. SMITH

2. Right

1. Right after SMITH

1. Right on JONES





Do Something for a Period of Time or Distance

- Has you do something for a given period or distance.
- Important– make sure you complete before moving on to the next instruction! For instance, RI#2 is not complete until you've completed the 30 seconds– don't turn left (#3) until after you're done with #2.
 1. Pause 10 at STOP
 2. Increase CAST by 2 for 30 seconds
 3. Left at first opportunity
 4. Follow the Lined Road for 0.5 miles
- 1. Note that “Pause” does not mean you need to actually stop for that amount of time (or at all)– it just means to add that amount of time



Ignore Things That “Don’t Exist”

- In any rally, there will be rules for things that are not used and should be ignored. These will be specified in the generals, supplementals, or special instructions. Some frequent items that may “not exist”:
 - Unpaved roads
 - Signs attached to mailboxes, trees, etc.
 - Words painted on the road, temporary signs (elections, realtors, garage sales), etc.
 - Driveways (unless specifically called out– usually just in transit zones)
- **It is important that you ignore those things when applying the route instructions.**
 - If an RI says **“Turn left at first opportunity”**, that doesn’t mean to turn left onto an unpaved road or into someone’s driveway. **You turn left at the first valid street.**
 - If the main road rules say to turn right at T or Y, if you come to a four-way intersection where the road ahead is unpaved, you are at a T and should turn right.
 - If the road rule says straight as possible, and the road straight ahead turns dirt, you follow the paved road.



Course Directions – “Or”

- *Execute either the instruction before the word "or" (whether or not capitalized) or the instruction after the word "or" but not both. The first opportunity encountered should be used to execute the numbered instruction.*
- Gives multiple options within one route instruction
 - CAST 45 at “Maize” or CAST 40 at “Blue”
- Each side of the “Or” is its own instruction
 - Left after “Green” or “Brown”
 - If you see “Brown” first, you just observe it– you don’t turn left at it!
- Once you’ve done one side of the “or”, the instruction is over– move on to the next RI



Tips – “Or”

- This is where Navigators can really shine!
- Read the RI's before starting the rally and highlight the or's
 - Left at “Brown” or “Green”
 - CAST 45 at GREEN or Left after “Brown”
- If the language is confusing, try reversing the order
 - Left at “Brown” or “Green”
 - → “Green” or Left at “Brown”
 - These mean exactly the same, but the second one is less confusing for the driver
- Very important to pre-read-- can be very challenging to figure out on the fly!
- Focus on what you're looking for (“Green” or “Brown”); once you spot it, then tell the driver what to do. It's really hard to keep *CAST 45 at “Green” or CAST 43 at “Brown”* in your brain, but it's not that hard to look for “Green” or “Brown”



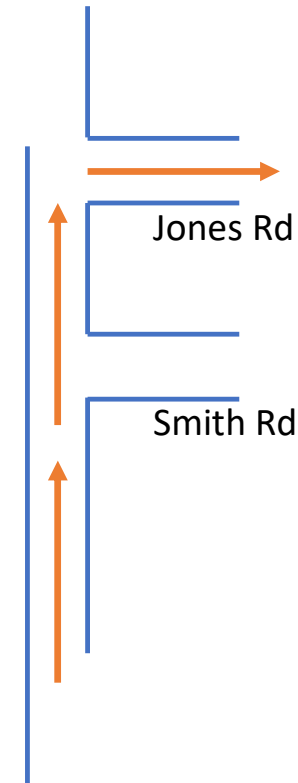
Examples

1. | Right on JONES | or | Left on SMITH |

1. | Right on PARK | or | SMITH |

2. Turn Right

1. | Left | or | Right after SMITH |





“Signs”

- Are referenced in quotes (“Green”)
- Refers to a sign you will see as you travel the route – it will be on the road you’re on (not behind you, not on a side street)
- The location referenced is the location of the sign itself
 - **CAST 45 at “Church”** means to change your speed to 45 MPH as you pass the sign that says “Church”
- A sign is only referenced once
 - Sign says “No Passing Zone”. RI is **CAST 20 at “No”**, next RI is **CAST 30 at “Passing”**– that would be the next sign.
 - Sign says “Left Turn Only / Right Turn Only”. RI is **CAST 20 at 2nd “Turn”**. This sign would count as the first “Turn”, but you’re still looking for the next one.
- If there are multiple signs on a single post, those are treated as one sign for the rally
- The following aren’t valid signs and should be ignored:
 - Temporary signs (garage sales, realtors, political, etc.).
 - Note that temporary traffic signs must be followed, but aren’t part of the rally itself.
 - Words painted on the road itself
 - Mailboxes (or anything attached to mailbox)



LANDMARKS


- Are referenced in all CAPS (GREEN)
- **Refers to an actual thing** that you will see as you travel the route. Most commonly this is a road, but can be buildings, bridges, park, etc.
- In order to avoid confusion, we only reference landmarks that are marked by a sign
- The location referenced is the location of the thing – typically the main entrance or other clearly identifiable feature. No intent to trick you based on location– use the obvious one.
 - **CAST 45 at CHURCH** means to change your speed to 45 MPH as you pass the church building.



“Signs” and LANDMARKS

- For both signs and landmarks:
 - The spelling of the sign must match exactly the spelling of the instruction
 - **CAST 45 at “Fortune”** does not match the upper sign. Wait until you see the correct sign.
 - **CAST 45 at “E 35th Street”** does not match the middle sign.
 - Can be a partial reference, but must be the complete word
 - **CAST 45 at “Fifth”** matches the middle sign
 - **CAST 45 at “Fort”** does not match the upper sign since it’s not the complete word
 - Capitalization and punctuation don’t matter
 - **CAST 45 at “Baptist”** does match the bottom sign even though the capitalization is different
 - **CAST 45 at FIRST** does match the lower landmark even though capitalization doesn’t match
 - Can only be used once
 - **CAST 45 at second “One way”** would not be satisfied just by seeing the middle sign– those are on the same pole, so count as one sign, and can only be used once. Wait until you see another “One way” to complete the RI.
 - Artwork doesn’t matter unless we specifically call it out (as in the sample route instruction #10). These references aren’t intended to confuse you, it just means we wanted to reference a sign that didn’t have usable text



9	Right at STOP.	
10	CAST 45 at No U-Turn Sign	
	BEGIN TRANSIT ZONE at "Smith". Take no more than	



Tips for Signs / Landmarks

- Navigator– need clear communication on whether the RI refers to a sign or a landmark. The driver can't tell unless you tell them.
- Suggest habit of reading “Sign” or “Landmark” when you read out the RI, or assuming everything is a sign unless you say “Landmark” (just realize this is dangerous– you might forget!).
 - RI – CAST 45 at “Green”
 - Say – CAST 45 at Sign Green
 - RI – Left after CHURCH
 - Say – Left after Landmark Church



CHECKPOINTS

- Checkpoints mark specific locations on the route, typically the start and end of timed legs
- There are some untimed checkpoints used as references that competitors are on or off course, or just to verify app is working
- All checkpoints are administered by the Richta app– it will notify you as you pass checkpoints along the route. There will be no physical markers at any checkpoint location.



Start / restarts

- You will be given an official start time for the beginning of the rally. Please try to leave the start area at this time so we can space the competitors apart.
- For this rally, all timed sections will start with a flying checkpoint (you'll get a start signal when you pass the predefined checkpoint); you are not required to start section at any specific time.
- However, in interests of keeping the rally organized and competitors spaced out, please leave 2 minutes in between cars when leaving the odo leg or leaving the gas station transit zone.
 - If you don't see another competitor, just leave on an even minute (ie, 10:02, 10:04, etc.).
 - This helps ensure you're not waiting excessively, but also giving a good chance of keeping cars separated over the route.



Untimed Zones

- There are two portions of the rally where your speeds/times don't matter:
 - **Odometer Check Leg** (aka Odo Leg). This is a section at the beginning of the rally with specified route to allow competitors to check their onboard odometer with the official rally distance. Reset your trip odometer at the start and follow the route to ensure you match the official distance, and then check your trip odo against the official mileage at the end.
 - **Transit Zones**. This is a section during the rally where you are not being timed. This may be to give you a break so that you can get gas, use restrooms, etc., or it may be because there are traffic or other conditions where it would be difficult to maintain speeds.
 - If the RI's include an obvious short transit zone (such as to cross one intersection), you should follow the route exactly.
 - If there is a longer zone of multiple RI's, it is fine to stop for fuel, restroom, etc. Do not stray too far from the given route-- you could inadvertently trip a checkpoint from a later section of the rally! Also note that if you go off the given route it will impact your trip odometer, so remember that if you need to reference it for a later instruction.
 - Don't go past the end point of the transit zone until you're ready to resume-- there could be checkpoints there!
 - All intersections with traffic lights (green/yellow/red) are transit zones whether indicated in the instructions or not. You don't need to worry about maintaining CAST until you get through the intersection, but do resume CAST as quickly as possible; the restart checkpoint may happen quickly.



Main Road Rules

- Also called “Course Following Rules”. The most basic rules— apply when there is no other specific instruction.
- Allows the RI’s to be much shorter— no need for a specific instruction at every intersection
- These are specified for the event in the supplemental instructions
- For the PiP 2023 Rally, the MRR’s are:
 1. STRAIGHT AS POSSIBLE. Proceed through the intersection in the straightest direction possible. Do not try to apply Straight as Possible Rule at a T or Y intersection.
 2. RIGHT AT T OR Y. At T or Y intersections where no RI is given, turn to the **right** side of the T or Y junction.
 3. PAUSE 10 AT STOP. All intersections marked with STOP on the direction of travel should be observed with 10 second pause unless an active RI states not to pause, or specifies a different pause duration. If the RI specifies a pause, take the pause specified in the RI in place of the 10 second pause specified here—don’t add the two pauses together.



Course Directions

- Mostly fall into two types:
 - How fast to go – speed instructions
 - Where to go – directional instructions
- Others
 - Observational
 - Do something for time or distance



Observational

- Observations are instructions which must be executed- don't execute the next instruction until you've completed the observation!
- The word "Observe" is optional– an instruction which just lists a sign or object means to observe it.
- Examples
 1. Observe SMITH
 2. SMITH
 3. "Smith"
 4. Observe three "Do Not Pass"



Richta App

- Before the event, install the Richta Competitor app through Apple App Store or Google Play Store. Search for “richta” and select the Competitor app.
- If you want to check the app before the event, register for the “Test My Competitor GPS” event (next slide).
- You don’t need to do anything else in advance– you will get the event details and password for the rally when you check in.
- For more info, consult the Richta app instructions which were emailed separately.

During the Event



- During the rally, you really don't need to worry about the app for anything other than time allowances (TA).
- The app will record the time at which you pass checkpoints and calculate your score. Various checkpoint types are:
 - **Time check** – will display time that you passed the checkpoint, but no score is recorded. RSR uses these particularly during the odo leg so you can see how the app works as you pass checkpoints.
 - **Restart** – no score recorded; this just means a scored leg has started.
 - **Scored checkpoint** – indicates the end of a scored leg. Shows your time and score for the leg.

8:57 2022 PCA Parade • Car #25

Rally Clock 20:57:54 Score 144

GPS Accuracy 4 meters Time Allowance 00:00

TA- TA+

Completed Checkpoints

CP	In Time	Difference	Score
#11	09:30:03.7	00:20.7 Early	20
#10	09:19:03.4	00:07.4 Late	7
#9	09:14:47.0	Restart	
#8	08:48:39.3	00:10.2 Late	10
#7	08:37:04.1	00:16.2 Late	16
#6	08:31:26.8	00:28.8 Late	28
#5	08:19:02.7	Time check	
#4	08:12:02.9	Time check	
#3	08:09:20.1	Time check	

Settings ver. 1.23 (116)

Time Allowances



- **Time allowances are used to promote safety, so you don't have to speed up if you get delayed. You should never have to speed to make up time.**
- Time allowances simply adjust your time on the leg.
 - If you complete a section in 4:05, with 20 seconds of allowance, you will be scored as if you completed the section in 3:45.
- Time allowances can be taken for any reason— no justification is necessary.
- Time allowances only correct for delays. If you're ahead of schedule, pull over safely and wait or slow down— there is no “negative” time allowance.
- Must be taken before the end of the current leg. Once you pass the end checkpoint for a leg, it's too late to take a time allowance— that leg is over. Since you don't know where the checkpoints are, it's important to take the allowance as soon as possible when you realize you're behind on time.

Time Allowances

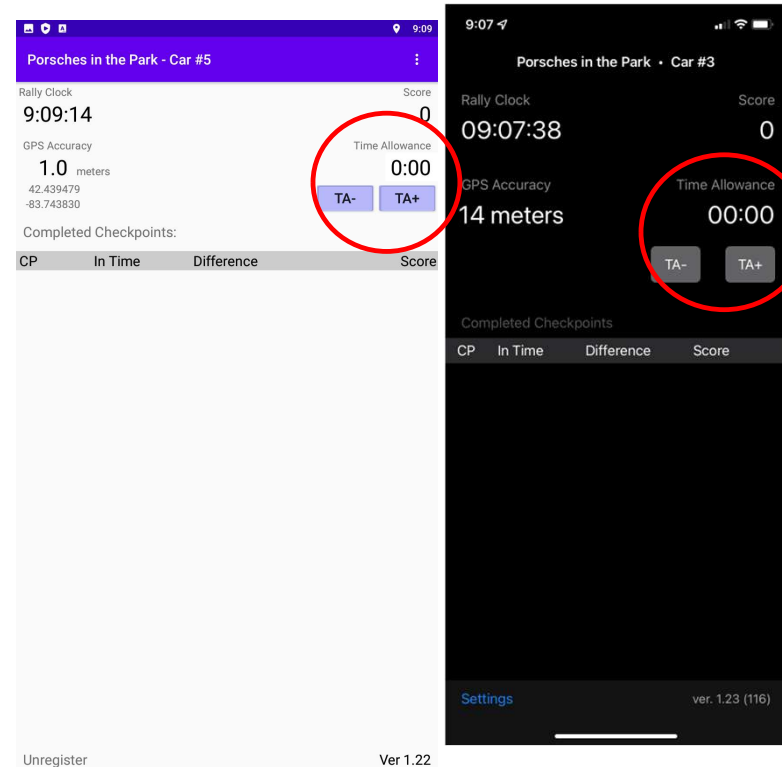


- Common reasons you might need a Time Allowance:
 - You get stuck behind slower traffic and can't maintain speed, or you choose to pull over and create a gap.
 - The road is blocked – train crossing, garbage truck, emergency vehicle, etc.
 - Road conditions require you to slow down – raining, loose gravel, construction, etc.
 - You realize you made a navigational error which causes a delay
 - Vehicle or personal emergency that requires a stop
- Regardless of the reason for the delay, don't try to make up the time by speeding, and don't feel like you just lost the rally– just make your best guess at how far behind you are and take a Time Allowance accordingly.



Time Allowances

- Time allowances are taken directly in the app:
 - TA+ Adds one increment to the time allowance
 - TA- Subtracts one increment from the time allowance (cannot go below 0)
- Increments by 10 seconds up to 30 second TA, then increments by 60 seconds
- If you need a different TA, simply take the next highest increment and then pause to make up the difference
 - Example– you are delayed 2 minutes for a train crossing.
 - Take 2:30 of TA, and then pause 30 seconds in a location where it's safe to do so.
 - Remember to do this as soon as you can– the next checkpoint could be close!
- Don't take time allowances on the odo leg or in transit zones (you're not being timed).
- Your TA should be applied at the next scored checkpoint. If you pass through a checkpoint and you don't think the TA was applied correctly, please note it immediately (screen shot of the app would be great) so we can review later.





Division of Labor

- Every team is different, but here are some suggestions...

Driver

- Drive Safely
- Drive at assigned speed and try to stay on time
- Look for signs and landmarks
- Help interpret the instructions
- Provide odometer readings to navigator as necessary
- Verify/confirm what you hear from the Navigator

Navigator

- Read the instructions aloud. Distinguish between signs and landmarks
- Interpret the instructions as needed
- Help look for signs and landmarks
- Check off completed instructions
- Silently read ahead at least one instruction so you know the next action point– it could happen quickly. Also helps to detect potential traps before you read them aloud to the driver.
- When there are gaps, remind driver what CAST is (or use Post-Its!) and what to be looking for.



Speed Following

- Lots of things can cause you to fall below the CAST— curve in the road, rough pavement, looking for a sign, traffic, etc. You do need to account for this by either taking a time allowance or overshooting the CAST to recover. Note that most slowdowns aren't as bad as you think— try not to come in early because you're overcorrecting for a few seconds where you slowed down a few MPH; that's not much time!
- Remember that it takes time to change speeds. If the CAST increases, you may want to overshoot for a few seconds before settling back to the CAST; if the CAST decreases, you may want to undershoot for a few seconds.
- Stops take time— you have to decelerate to the stop, check for traffic, then accelerate back up to CAST. Even if there is a pause in the RI's, be aware of how much time you're losing.
 - Hint: If you gently stop and gently accelerate, you're probably losing 10-15 seconds. If the RI's tell you to pause 10 seconds, don't wait 10 seconds at the stop sign— you'll be late!

Questions?

