# GPS Rally Computer



## reset ⏰  settings ⚙️   GPS Rally Computer   map 🗺   🚗odo ✅

**1.4 +**

10    10

17:10:09.8 T.Calc
17:10:08.5 T.O.Day

Pause   total 0:00  − 0:30 +   Gain

Split   🏁   Control

gps 🛰

CAST
72.00
Curr CAST

locked 🔒

Countdown
01:52
to Next CAST

log 📋

1.006
miles

⬇️ Reverse   Park   Forward ⬆️

auto   CAST@Dist>   auto

Adjust Odo   − 0.000 +

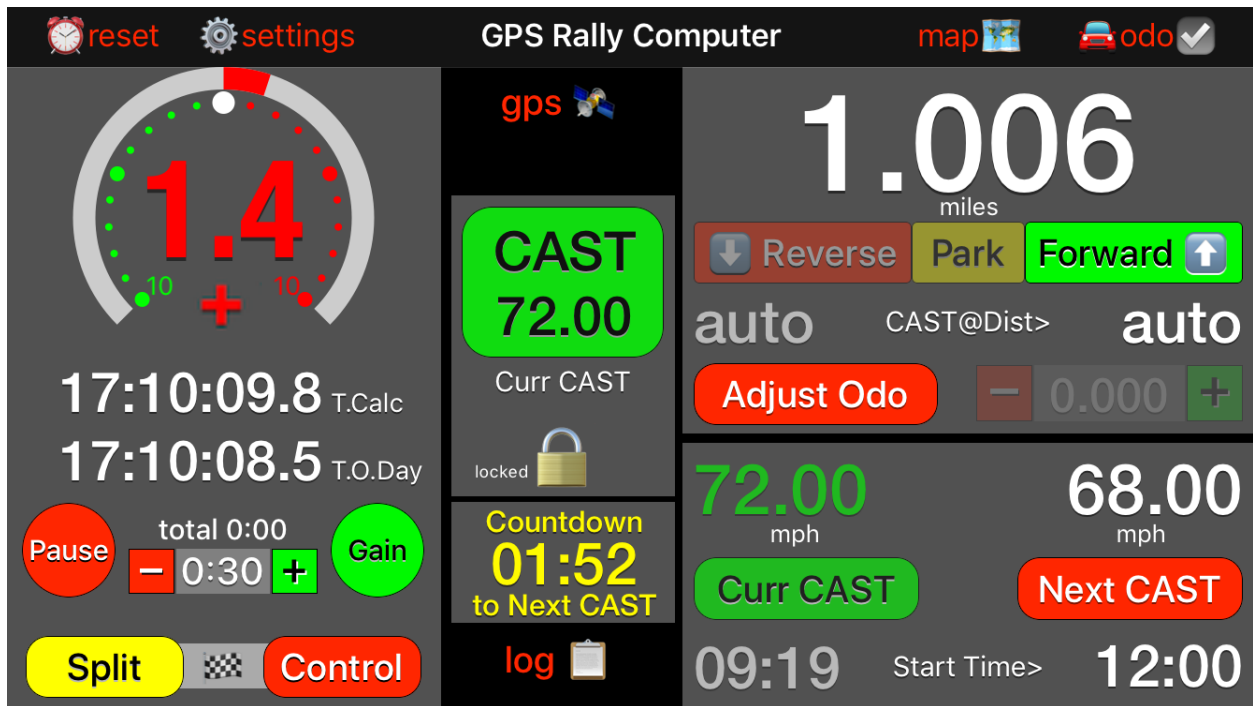72.00 mph          68.00 mph

Curr CAST          Next CAST

09:19   Start Time>   12:00

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# Introduction

The GPS Rally Computer is an application for Apple iOS devices, including iPhones and iPads, that perform calculations in a Time-Speed-Distance (TSD) road rally such as those sanctioned by the Sports Car Club of America (SCCA – www.scca.org). This software uses GPS to measure distance, location, speed, and bearing.

As with any piece of rally equipment, the rally team should be thoroughly familiar and comfortable with the GPS Rally Computer prior to using it in an event. The rally team Navigator will be the principal user of the app and its computations and information will be shared with the rally team Driver, but the Driver should not physically handle this app while driving the car.

The GPS Rally Computer was designed to address the requirement for a rally computer that is relatively inexpensive and simple to learn and use, while containing enough features for more experienced competitors. The user interface is modeled after the classic Zeron 660 and 880 rally computers of yore. The generic name for rally apps with similar design is the "Simple Rally Computer" or SRC.

A thorough knowledge of the functions and operations of this app will come from practice along with reference to the explanations and advice in this User's Manual. Practice, practice, and then practice some more. Then, rally on!!

Comments, questions, and suggestions for improvement of the app or this document can be sent to mike@msyapps.com or via the feedback section at the bottom of the MSYapps homepage at http://msyapps.com.

# Quick Reference

This section is intended as a quick introduction to the GPS Rally Computer app before and during an event. Button names or key label names are shown in bold letters.

## Before the Rally

On your mobile device, be sure that **Location Services** in set on. Allow time for the device's internal GPS receiver or third-party GPS receiver to locate satellites and to start recording your location, usually less than thirty seconds after allowing the app to get locations in the background. Touch the **GPS** button to see that the GPS signals are being received.

If you are using a third-party GPS receiver like the Dual 150 or 160 models, be sure that **Bluetooth** is turned on. Turn **Wi-Fi** off and on, for good measure, close all other apps on your device that may be open or running in the background (see Apple instructions for closing background apps by sliding them off the display).

Battery life is considerably shortened while using GPS, so plugging your device into a 12 volt supply is a wise precaution.

## At Registration

Touch the **Settings** button to select **Time** measurement as Minutes and Seconds or Minutes and Cents. Verify that **Distance** will be measured in either Miles or Kilometers. When done, return to the app by touching anywhere on the screen. Touch the ⏰ **reset** button to synchronize your device clock with the official rally clock, if necessary.

## At Start of Odometer Check

At the Starting Line, be sure that the odometer reading is zero. Then, touch the Start Odo Check button to begin the stage. The distance will begin at zero and accumulate as either miles or kilometers as you

move away. Notice that the triple-position directional buttons below the distance display will change from Park to Forward ⬆.

## At End of Odometer Check

Touch the Stop Odo Check button and the triple-position directional button will switch from Forward ⬆ to Park to freeze the Distance measured over this opening leg of the rally.

A popup view will open showing the Distance beneath the **Car Odo** label. From the Calc Factor option, you may key in the official distance for the odometer check leg beneath the Rally Odo label to have the app compute the Odo Factor, or enter your own correction factor using the keypad after touching the Input Factor option. Confirm and set the Odo Factor by touching the Apply Factor button when it is enabled.

The app will now correct the GPS distance readings to match that of the Rally Master. In other words, the GPS distance readings you see in the app will be corrected to conform to the readings intended by the Rally Master.

## Starting the First Timed Stage

You will start the first timed stage of the rally by touching the Start at Outmarker CAST xx.xx button (after unlocking the 🔒 padlock icon) or by waiting until the **Start Time** ticks down to zero.

Remember that you may select Time, Speed (CAST), and Distance for the first stage by touching the 1st CAST button to display the TSD popup view. Select the variable to be set by touching a black label, for example **Start Time**, and then the label color will change to red indicating that **Start Time** is now ready for keypad input. CAST and Start Time inputs are required as shown or you will not be allowed to proceed.

When you are sure that the TSD inputs are correct, touch the 1st CAST button to hide the popup view and to have the current TSD

inputs as well as the CAST speed for the first stage displayed on the **Start at Outmarker CAST xx.xx**, where xx.xx will be 35.00 if you set the **CAST** to **35.00** mph or kph.

Setting the **Odo Dist** to **00.00** or to any other number *will not reset* the mileage.

Move to the starting point for the first stage (resetting the 🚗 **odo** ☑️ to zero, if necessary) and, as you leave the starting point, touch the 🔒 padlock icon to unlock it and to activate the **CAST xx.xx** button. Lastly, touch the **CAST xx.xx** button to begin computations.

## Changing Speeds (CAST)

While driving to the point where the next speed change or CAST will take place, preset the TSD variables on the popup view that will appear after touching the **Next CAST** button. Just as you did before starting the first timed stage, hide the popup view by touching the **Next CAST** button once again.

Notice that the green button in the center of the screen still shows the Current **CAST xx.xx** because the button is locked. To activate the Next **CAST xx.xx** button, you must first unlock the padlock icon. Upon clicking, the padlock icon will change from locked 🔒 to unlocked 🔓 and the CAST button will change to red Next **CAST xx.xx** indicating that it is active.

Locking and unlocking the CAST button is designed to prevent inadvertent actions; it is a precautionary device to help you avoid erroneous CASTs.

Note: CAST is an abbreviation for Change Average Speed To. Some Route Instructions use the abbreviation CAS for Change Average Speed or Continue Average speed. Regardless of which abbreviation is used, CAST and CAS have the same meaning.

# Keeping Pace While Running

As you proceed along the rally route, you will follow directions that include changes in course (turn left at the "Stop" sign, for example) and changes in speed (**CAST 25** at next stop light, for example). Along the way, the official time necessary to travel the distances you have gone at the various speeds given in the Route Instructions will be added to the Time of Day (abbreviated **T.O.Day**) to produce the Time Calculated (abbreviated (**T.Calc**).

The difference between the **T.Calc** and the **T.O.Day** will be the **Time Error** in either **seconds** or **cents** (decimal minutes). For example, if the **T.O.Day** is **10:23:35** and the **T.Calc** is **10:23:50**, you are currently traveling at a pace **15 seconds** *faster* than the expected official pace. The **Time Error** will show as **15** in a red box preceded by red **+ + +** symbols in the upper left hand corner of the display. Also, the words Early slow down indicate that you are traveling *too fast* relative to the official pace, so you may wish to *slow down*.

Conversely, if the **T.O.Day** is **09:16:40** and the **T.Calc** is **09:16:20**, you are currently traveling at a pace **20 seconds** *slower* than the expected official pace. The **Time Error** will show as **20** in a green box followed by green **– – –** symbols in the upper left hand corner of the display. Also, the words Late speed up indicate that you are traveling *too slow* relative to the official pace, so you may wish to *speed up*.

When you are precisely on the official pace, the **Time Error** will be **zero** and the box will be yellow.

# Pause, Gain, or Time Allowance

As required in the Route Instructions or as you may chose optionally, touch the Pause/Gain/TA button to reveal a popup view where these conditions may be added with the keypad.

# Transit Zones

In some events, you are told to "**take 11 minutes to complete instruction 87**" with no average speed. Or, you might see an instruction that says to "**end transit zone at 12.35 miles**." In the Route Instructions, the beginning and end of the Transit Zone may be abbreviated BTZ and ETZ.

Using the two instructions above as examples of the beginning and end of Transit Zones, handle the instructions as follows.

BTZ "**take 11 minutes to complete instruction 87**":

Before reaching the point where this instruction is to begin (BTZ), touch the **Next CAST** button and set the **CAST** to **00.00** while leaving the **Odo Dist** and **Start Time** buttons unchanged.

Touch the **Next CAST** button again and wait until you reach the BTZ point or landmark.

Lastly, unlock and touch the next **CAST 00.00** button to begin the transit zone where no time error will be accumulated.

Notice that when you touched the next **CAST 00.00** button, the **Start Time** and **Start Dist** were also recorded below the **Curr CAST** button and above the **Adjust Odo** button respectively. If the **Start Dist** is not as indicated in the Route Instructions, use the **Adjust Odo** button to add or subtract distance as required.

While in the Transit Zone and before **instruction 87** in this example, set up the conditions that will take effect when you get to the end of the Transit Zone at **instruction 87** by touching the **Next CAST** button and setting the time, speed, or distance variables. When done, touch the **Next CAST** button again to be ready.

At the ETZ **instruction 87**, resume **Computed Time** by unlocking and touching the next **CAST xx.xx** button (or by counting down to the CAST time, if you selected the **Start Time** option).

ETZ "**end transit zone at 12.35 miles**":

> This instruction would indicate the ETZ, so up to this point you would have a CAST of zero and the Computed Time would have been paused.

> Now, while en route to the end of **instruction 87**, preset the Next CAST for the end of the transit zone, leave the Start Time at zero, and the Start Dist at auto. Finally, when you reach the end of **instruction 87**, unlock and touch the next Cast xx.xx button to resume distance accumulation and **Computed Time** changes based on distance.

## At a Checkpoint (Control)

Touch the Split ▓ Control button to record the time and other variables and have these entered in the log 📋 for informational purposes and for recording progress along the rally course.

Touch the Split ▓ Control button and chose the Yes, Control for new Stage response to indicate that you touched the button when crossing the Checkpoint line. This is very important and the time the button was touched will be shown at the top of the view where you make one of three choices: no control or split; control to end one stage and begin another; or spilt to record time, speed, distance, and error.

If you chose Yes, Control for new Stage, several things happen. First, the error computations cease. Second, the distance is reset to zero. Third, if you must make changes to distance, speed, and start time at the Outmarker that signifies the start of a new stage, then do so by touching the 1st CAST button.

Notice that the **Start Time** is **req'd**, which means a time must be inserted before proceeding with the **CAST**. You may wish to change this or other variables now, but, depending upon Route Instructions or

instructions given by the Checkpoint crew, you may defer changes until later.

## Leaving a Checkpoint (Control) on a New Stage

As you pass a Checkpoint, you may pull ahead, stop the car, and exchange information or instructions with the Checkpoint Staff.

Notice, that if you have accumulated any **Time Allowance** on the just completed Stage, that time will be shown between the Pause/Gain/TA button and the Split 🏁 Control buttons. The Route Instructions may ask you to report that **Time Allowance** to the Checkpoint Staff before starting the next timed stage.

You may also need to reset the mileage to zero at a particular point to start the next timed stage. If you do not reset the mileage to zero, the CAST xx.xx speed and time error will be computed assuming the Checkpoint or Control line was the zero mileage point for the next timed stage.

To reset the mileage to zero, drive to the starting point for the next timed stage and touch the Park button. Next, touch the 🚗 odo ✅ button and Sync Odos with the Rally Odo equal to 000.00 (or any other required distance). Touching the Sync Odos Car = Rally button will bring up a confirmation dialog box. Touching the Yes, set Car Odo to Rally Odo option will apply the mileage resetting.

## Recovering from Going Off Course

Once you have determined that you have traveled off course, choose a safe place to turn around. Touch the ⬇️ Reverse button from the triple-position buttons beneath the Distance measurement. Now, double back over the course until you return to the proper course and then touch the Forward ⬆️ button from the triple-position buttons.

While in ⬇️ Reverse, the distance travelled will be subtracted, the **Computed Time** will decrease, and **Time Error** early or late will compute based on the new distance travelled. If you wish to take a

**Time Allowance**, you will find the Time, Distance, and **Time Error** at which the ⬇️ Reverse and Forward ⬆️ buttons were touched from which you can estimate a reasonable **Time Allowance** to choose and enter in the appropriate place in the **Pause/Gain/TA** popup view.

## Adjusting the Odometer Reading

At times, it may be desirable to adjust the odometer slightly to match the official distances shown in the Route Instructions. Use the red **Pause to Adj** button to pause the display of Distance and then, as necessary, touch the + or – buttons to make the small incremental adjustment. Touch the green Resume Odo button to continue accumulating distance with the just completed adjustment.

# Screenshots and Reference Information

Here are examples of screenshots for each popup view along with information about the key features of each.

## Main Screen at Startup
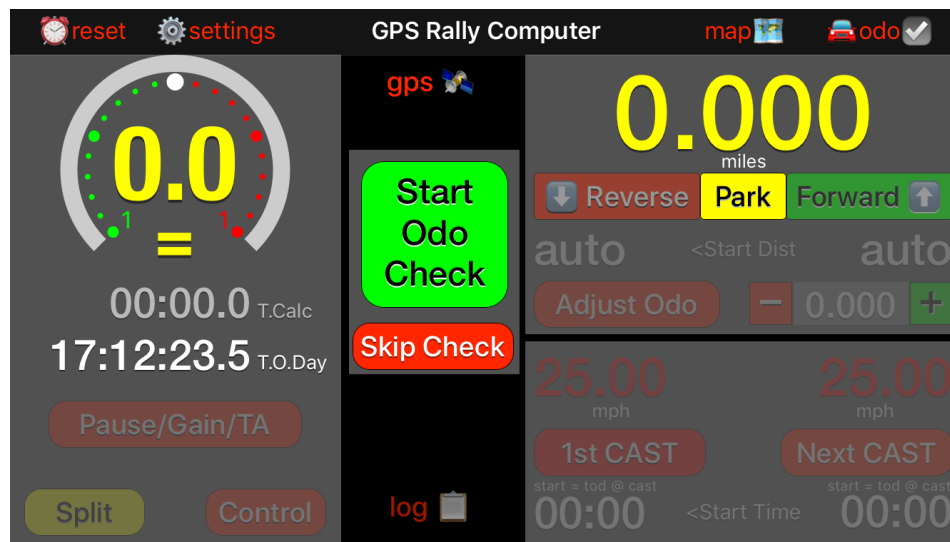


Menu bar at top: 🕐**reset**, ⚙️ **settings**, **map** 🗺️,and 🚗 **odo** ✅.

Popup buttons in the center: **gps** 🛰️ and **log** 📋.

Grey views with buttons and information:

> On the left are time-related functions and displays including **Time Error** at the top, **T.Calc** and **T.O.Day** below, and **Pause/Gain/TA**, **Split**, and **Control** buttons at the bottom.

> In the center are CAST and related buttons that start time and distance computations including **Start Odo Check** and **CAST xx.xx** and lock 🔒 and unlock 🔓 padlock icons. Also, if a **Starting Time** is included with a **1st CAST** or **Next CAST**, a **Countdown to CAST** clock view will appear.

On the upper right are distance-related buttons and information included the GPS-computed distance (corrected by **Odo Factor**) in miles or kilometers, the triple-function travel direction buttons ( ⬇️ **Reverse**, **Park**, and **Forward** ⬆️ ), **Start Dist** with the user-specified inputs showing current starting distance on the left and next starting distance on the right (**auto** means that the distance accumulated will not be reset upon Next **CAST xx.xx**), and buttons allowing fine adjustment to the running distance.

On the lower right are **CAST** speed buttons and amounts as well as **Start Time** information modified on and received from the **TSD** input view that is shown when you touch either the **1st CAST** or **Next CAST** buttons.

Depending upon the rally situation, for example, following the 1st timed **CAST xx.xx**, the various buttons and information will be shown with bold colored backgrounds or will be greyed out. When bold colored, the buttons will be active (with one exception described below) and the information will pertain to the current rally situation. Otherwise, when greyed out, the buttons will be inactive and the information will reflect the conditions when the CAST was initiated. Remember to lock 🔒 the1st or Current **CAST xx.xx** button to prevent inadvertent touches and to unlock 🔓 the Next **CAST xx.xx** button to make it active.

# Main Screen While Running
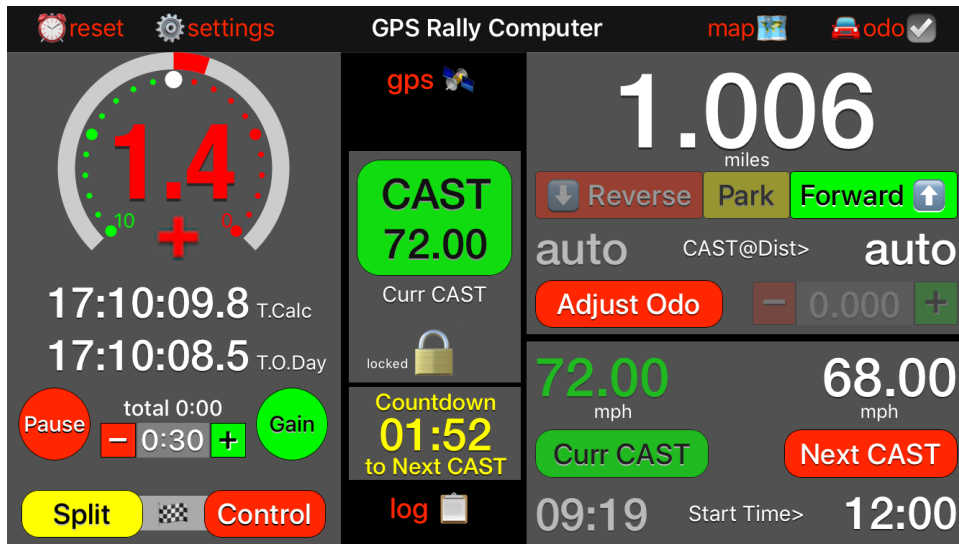


Active buttons are shown with a bold-colored background with one exception, namely the Current CAST xx.xx button. Inactive buttons are shown greyed out.

In the display above, the Current CAST 72.00 button is *inactive* despite being shown with a-colored green background. This is because the padlock icon 🔒 in the "locked" position.
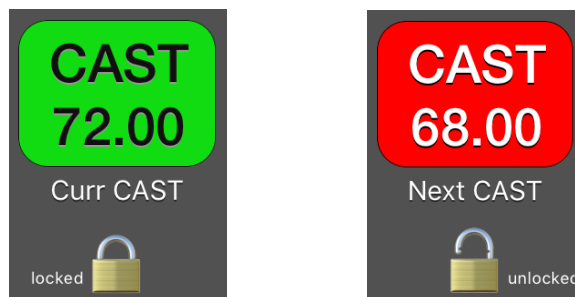


Touching the padlock icon will toggle between "locked" and "unlocked." When the padlock icon 🔓 is "unlocked," the Next CAST 68.00 button will be *active* and its background will become a bold-colored red.

When a **Start Time** for the 1st CAST or Next CAST is non-zero, a **Countdown to CAST** view will be displayed and the CAST xx.xx

button will execute as if touched automatically when the countdown clock reaches zero. Alternatively, you may unlock padlock icon 🔒 to manually initiate the Next **CAST xx.xx** action by touching.

Notice that after the 1st timed **CAST xx.xx**, the **< Start Dist** label just beneath the **Park** button changes to read **CAST @ Dist >**. This means that the displayed odometer distance will continue unmodified after the Next **CAST xx.xx** if the word **auto** is shown, or will be set to some new distance that you may set in the CAST view popup display. The reason you may wish to set a new distance is because the Route Instructions indicate that the **Next CAST** will take place at a particular distance, say a distance of **2.46** miles for example. Be aware, however, that the Next **CAST xx.xx** will not be executed automatically at **2.46** miles, but rather the odometer distance will reset to **2.46** miles when you manually Next **CAST xx.xx** at the appropriate point.

## Clocks and Computed Time Errors

The panel on the left-hand side of the main screen displays information about time and computed timing errors relative to the pace of travel that you are expected to maintain for zero penalty points.
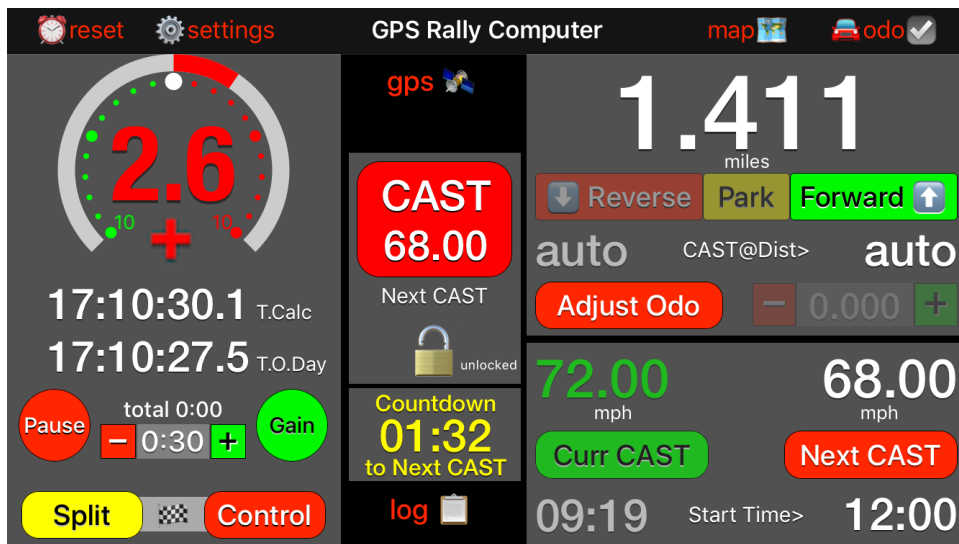
The **T.O.Day** is the continuously running time that may have been adjusted to synch with the official Rally Time. The **T.Calc** is generally the ideal clock time if you are traveling at the expected pace, CAST, for the distance determined by GPS inputs. The difference between the **T.O.Day** and the **T.Calc** is the Time Error either ahead or behind the ideal pace at the distance.
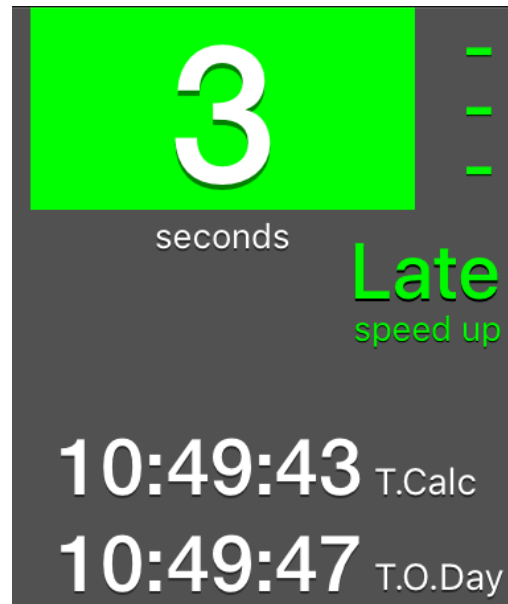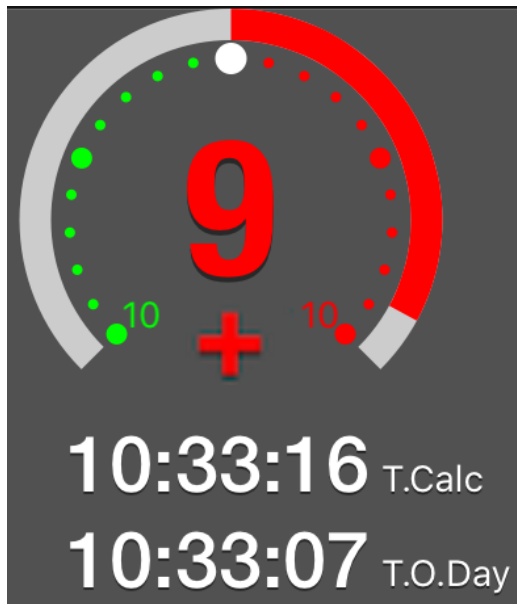
# Adjust Clock or Reset App Initial Conditions



Touch the ⏰**reset** button to open a view where you can make a clock adjustment or reset all conditions for a new rally.

To start a new rally or to clear a running rally and reset all variables and displays to their appropriate starting conditions, first touch the 🔒 padlock icon. Next, touch the **Reset App** button and approve or disapprove the resetting of starting conditions as you wish.

You can also touch the 🔓 unlocked padlock icon to deactivate the **Reset App** button.

Synchronize the device's internal clock with the official rally clock by adding or subtracting decimal seconds or decimal cents by means of the up 🔼 and down 🔽 arrow buttons. For a better chance of getting zero penalty points, some rally teams like to set the clock slightly ahead so that zero error at a Control will actually be a bit early. It is easier to slow down to get a zero than it is to speed up.

The **Adjusted T.O.D.** device clock will reflect the changes you have made and you can see the comparisons to the **Unadjusted T.O.D.** clock on the view.

Touch the ⏰**reset** button to close the adjustment and reset view.

# App Settings Inputs

Various **Measurement** and **Display Settings** are found in a popup as follows:
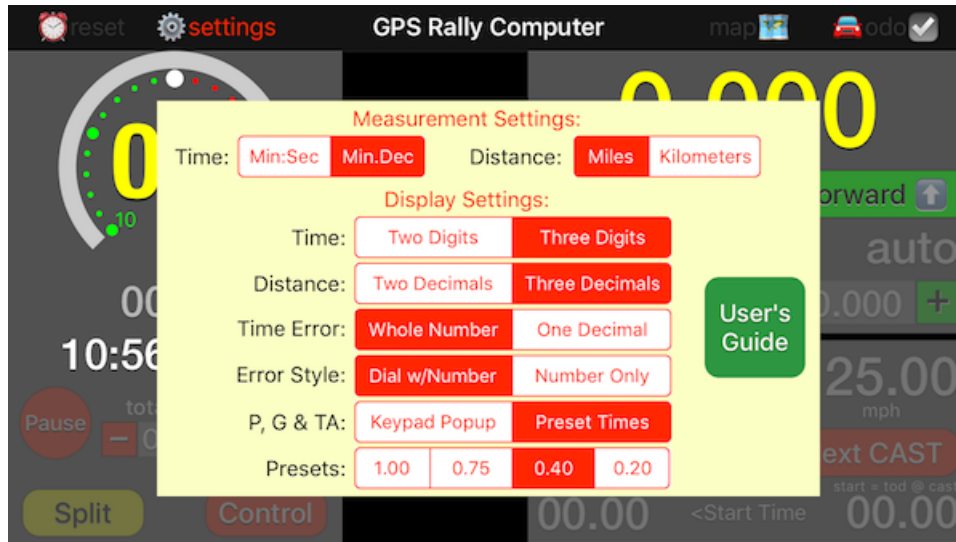


Touch the appropriate items to toggle between two or, in the case of **Pause, Gain & Time Allowance** (**P, G & TA**), four choices. When finished, touch anywhere on the screen to close the popup.

In this example, the **Distance** Measurement is in Miles and the **Time** is measured in Minutes and Decimals (aka Cents). These two choices will active when the app has been reset to its initial conditions, i.e., before starting the app for the actual running of the rally, otherwise they will be greyed out.

**Display Settings** can be made at any time, before the start or afterward. This is particularly useful when, for example, you wish to use **Presets** for **Pause** or **Gain** times in a quick and easy way with a single button click most of the time and only need the option of **Time Allowance** occasionally.

**Time** can be displayed to **Two** or **Three Digits** precision. Similarly, **Distance** can be displayed to **Two** or **Three Decimals** precision.

**Time error display** may be shown as Whole numbers or Decimal numbers.

**Time error style** has two options: **Dial w/number** and **Number only**. The **Dial w/number** option shown elsewhere in this Guide may be the easiest to view at a glance.

Lastly, this User's Guide is linked and accessible within the settings popup.

# Map Display



Touch the **map** 🗺 button to show the display.

The display is a street map with balloons to indicate the location and **log** 📋 number of any split.

Also, note that the color of the route changes on the action you take. When moving **Forward** at a non-zero **CAST**, the route will be shown as a **blue** line.

When you **Reverse** direction when off course, the route will be shown as a **red** line.

When moving through a Transit Zone with a **CAST** of **00.00**, the route will be shown as an **orange** line.

When in **Park**, the route will not be shown even if you move while in the **Park** mode.

Touch the **map** 🗺 button to hide the display.

# Odometer Factor & Adjustments
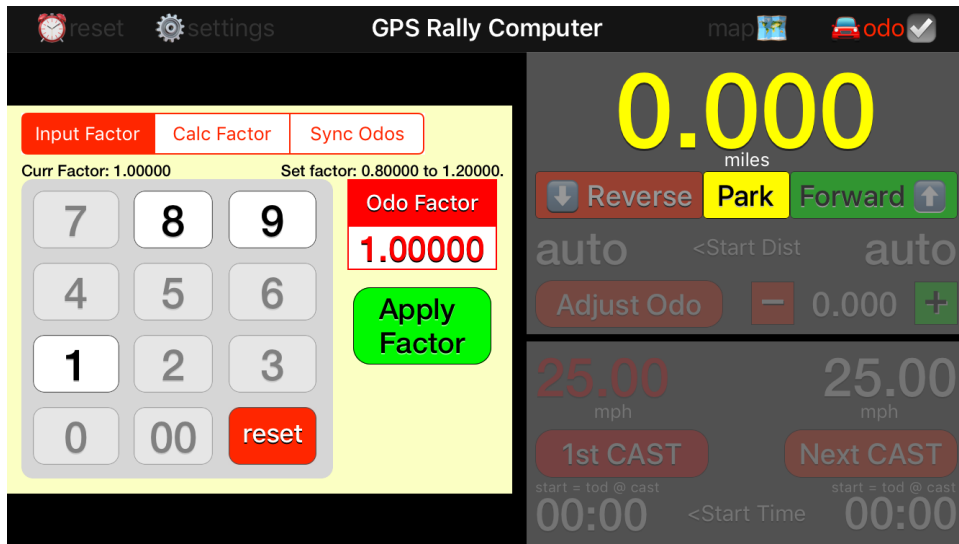


Touch the 🚗 **odo** ☑️ button to show the input view. Notice that there are three optional ways to use this popup input view shown in the triple-segmented bar at the top: **Input Factor**, **Calc Factor**, or **Sync Odos**. Each is option is described below.

**Input Factor** Option:

Use this option to manually input an odometer correction factor defined as your car's odometer reading divided by the official rally odometer distance as provided in the Route Instructions at a particular landmark or waypoint.
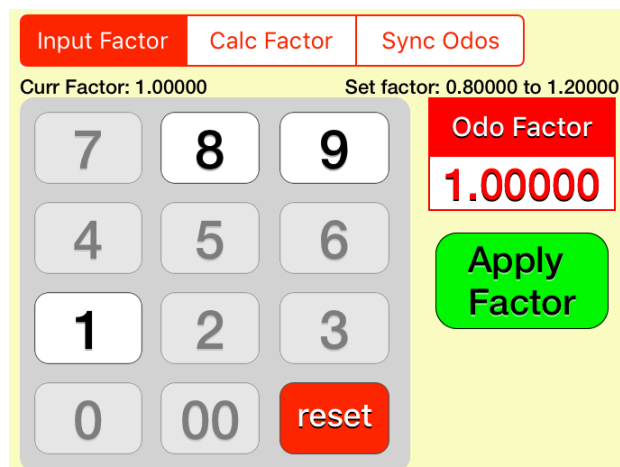
Notice that in this example, the **Curr Factor** is 1.00000 and that the factor must be between 0.80000 and 1.20000 inclusive in order to be valid. The limits are imposed to reduce the chance of unintended, overly large or small factors.

Also, the numerical keypad has inputs limited to allowable numbers. When a valid number has been entered, the Apply Factor button will be enabled. You must touch this button in order to insert the Odo Factor into the app for further computations.

Touching the reset button will restore the Odo Factor to the default setting of 1.00000, however, if you have already applied another factor, the default will not take affect until you touch the Apply Factor button again.

Calc Factor Option:

Use this option at the end of the Odometer Check stage, typically the first stage of a rally, or at any other time when you believe that the **Car Odometer** must be adjusted by a factor to keep it in line with the official Rally Odometer.



The clear button will set the Rally Odo to 000.00.

In this example, the **Car Odo** at the end of the **Odometer Check** stage was **6.34** miles. (Note: this option does not allow entries unless the **Car Odo** is at least **0.10**.) Suppose, however, that the official distance for the **Odometer Check** stage was **6.50** miles in the Route Instructions. Use the keypad to set the **Rally Odo** to **6.50** miles. When you do this, the **Odometer Factor** will be calculated as 6.34 / 6.50 or **0.97538**. Touch the **Apply Factor** button to set this as the new correction factor in the app.

**Sync Odos** Option:

From time to time you may need to make small or large adjustments to the recorded distance. When choosing this option, the **Car Odo** reading will be that which was available when the 🚗 **odo** ☑ button was touched.
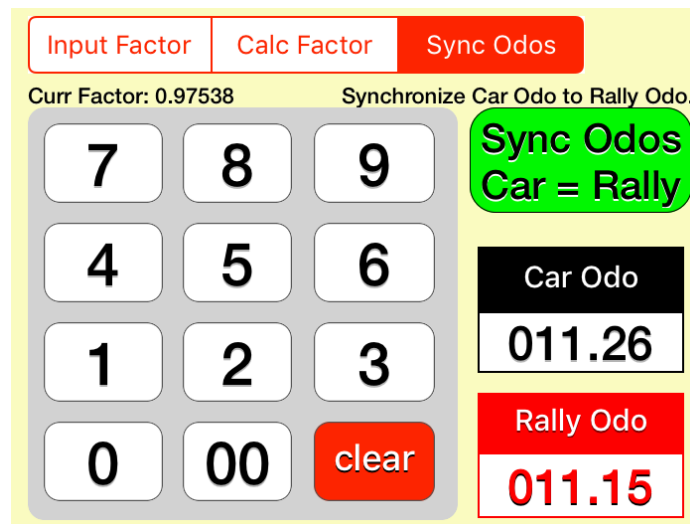


Use the keypad to adjust the **Rally Odo** as required, for example, to match some distance measure given in the Rally Instructions at a landmark or waypoint.

In this example, when the 🚗 **odo** ☑ button was touched, the **Car Odo** was **11.26.** However, you noticed that the Route Instructions at the landmark where the 🚗 **odo** ☑ button was touched was suppose to be at an official distance of 11.15. So,

to synchronize your computed **Car Odo** with the official distance, use the keypad to set the **Rally Odo** to **11.15** as shown here.

When the **Rally Odo** input is correct, touch the **Sync Odos Car = Rally** button to set or apply the corrected distance. (Notice that the **Curr Factor** will remain unchanged.)

Touch the 🚗 **odo** ☑ button to hide the input view.

## GPS Information Display



Touch the **gps** 🛰 button to show the display.

**GPS Info from Apple**: GPS data are generated by the device's internal GPS receiver.

**Apple battery**: iOS device battery level as a percent.

**GPS Info from Dual**: GPS data are generated from a Dual GPS receiver.

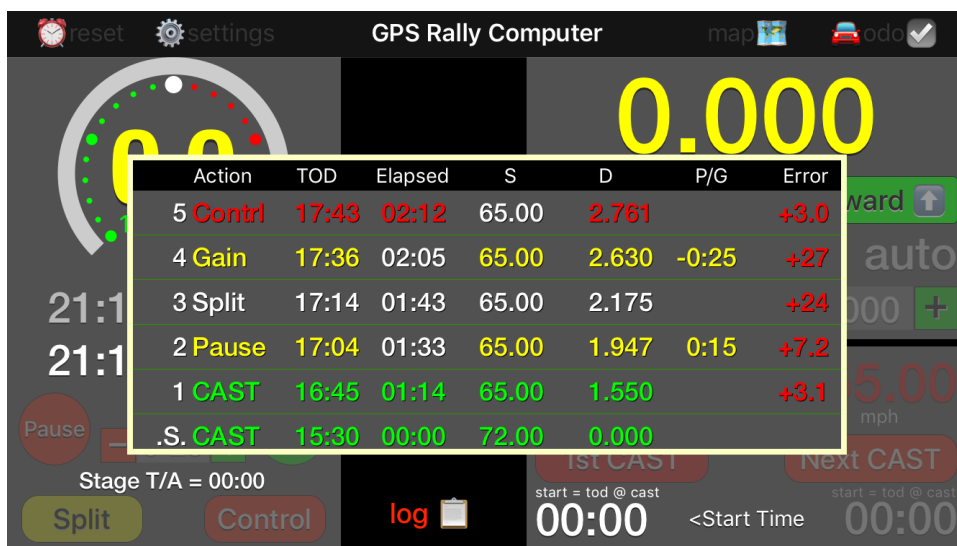**Dual battery**: Dual GPS receiver battery level as a percent.

**Latitude** & **Longitude**: Measurement in degrees.

**Bearing**: Current compass direction in which the car is traveling and blank when parked.

**Speed**: Current speed in miles or kilometers per hour and blank when parked.

Touch the **gps** 🛰 button to hide the display.

## Log Display



Touch the **log** 📋 button to show the display.

Various actions initiated automatically or by user-touched buttons will trigger an entry in this log table.

Reading from left to right, the columns in the table show a row number, an action taken, a **T.O.Day** indication in minutes and seconds or cents, a **CAST Speed**, a **Distance**, a **Pause/Gain** (or **Time Allowance**) time also in minutes and seconds or cents, and an **Error Time** in seconds or cents either **Early** (**+**) or **Late** (**–**) or zero, if on time.

Touch the **log** 📋 button to hide the display.

# Time Speed Distance Inputs
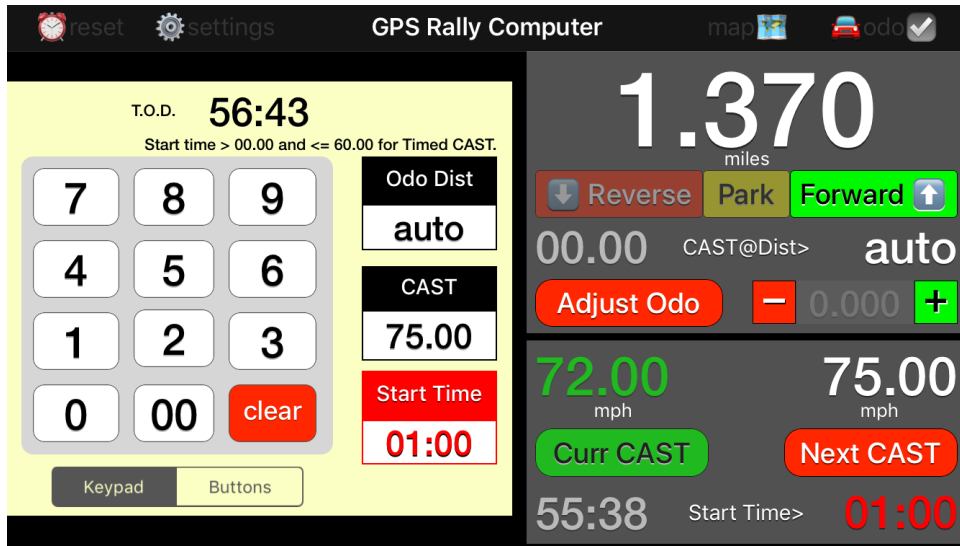


Touch the active **1st CAST** or **Next CAST** button to show the input view. You may input numbers with a **Keypad** as shown above, or with **Buttons** as shown below.
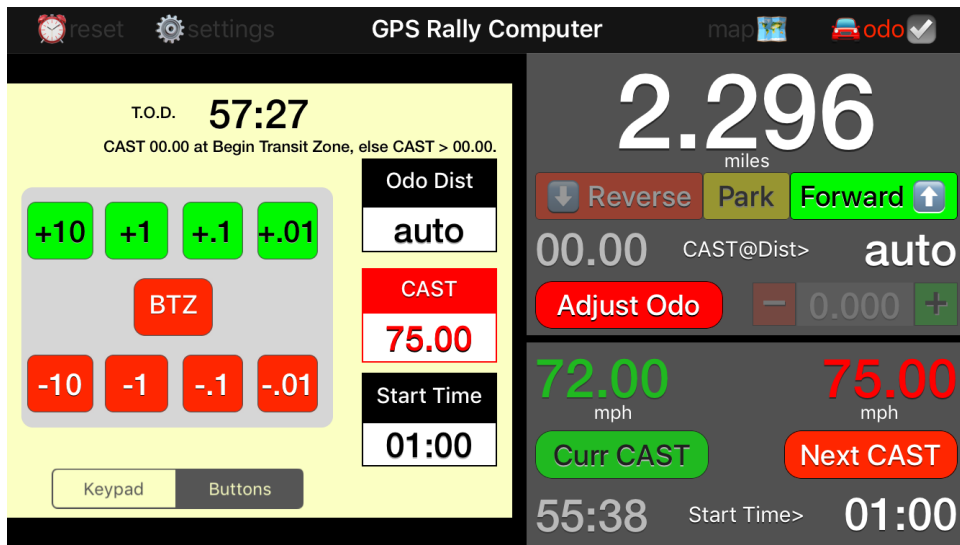


Touch any of the three boxes, **Odo Dist**, **CAST**, or **Start Time**, and the background color of the box and color of the numbers will change to red indicating that that number can now be changed with either the numerical keypad or with a set of buttons.

Also, when touching any of the three boxes, the title of the red button on the keypad will change as follows: when **Odo Dist**, the title will be **auto**; when **CAST**, the title will be **BTZ** for Begin Transit Zone; and when **Start Time**, the title will be **clear**.

To help you chose the next **Start Time**, the current **T.O.D.** minutes and seconds or cents is displayed at the top of the view.

Notes about the **TSD** variables are shown above the keypad for your assistance in making inputs.

An **Odo Dist** input of **auto** means that the distance will continue to accumulate when the Next **CAST xx.xx** button is touched. Changing the **Odo Dist** input to a **xx.xx** distance means that the odometer will be reset to this distance when the Next **CAST xx.xx** button is touched.

Touch the active **1st CAST** or **Next CAST** button to hide the input view and display the chosen settings for **Start Dist** (non-zero or **auto**), **CAST xx.xx**, and **Start Time**. Notice the reminder that the "start = tod @ cast" for the case where **Start Time** is zero.

# Pause/Gain/TimeAllowance Inputs
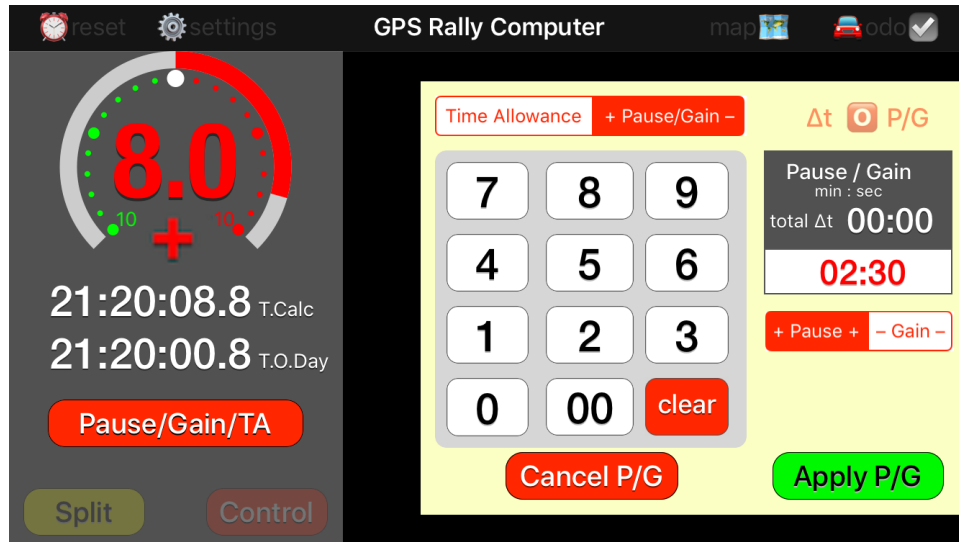


Touch the **Pause/Gain/TA** button to show the input view.

Choose a **Time Allowance** or a **+ Pause/Gain –** with the toggle button at the top of the view.

Enter a time in minutes and seconds or minutes and cents with the keypad.

If desired, clear a time input with the **Cancel P/G** or **Cancel T.A.** button.

Time input will only be recorded in the **log** 📋 and used in computations after you touch the **Apply P/G** or **Apply T.A.** button.

Total cumulative time between **Controls** for either **Pause/Gain** or **Time Allowances** can be returned to zero by touching the **Δt 🅞 P/G** or **T.A. 🅞 Δt** buttons when active.

Touch the **Pause/Gain/TA** button to hide the input view.

# Control or Split Choices

A **Split** records times, speed, distance, and timing errors in the **log** 📋 when the button is touched. You may **Split** at any time while running, often to keep track of progress at waypoints.

A Control, also known as a Checkpoint, is a timed location on the course where certain additional tasks may be performed including ….
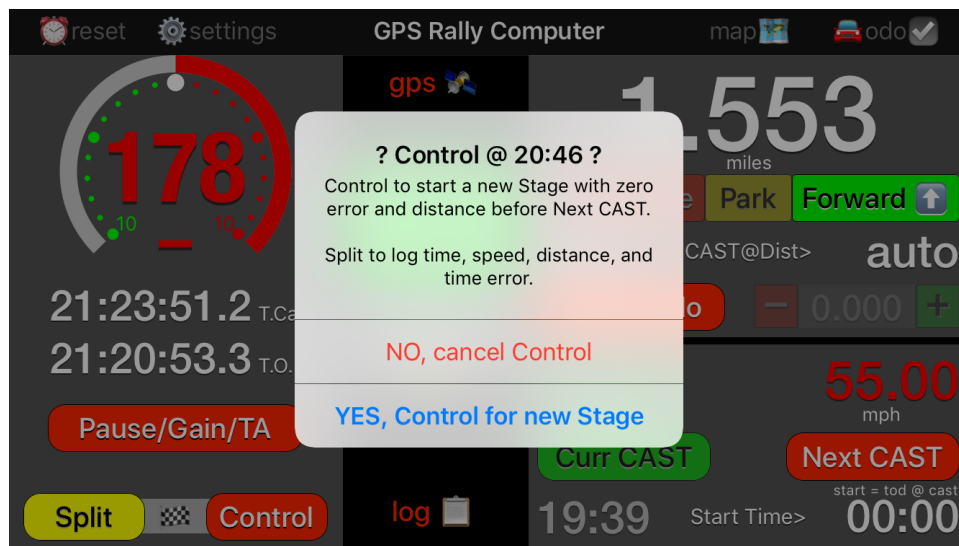


Touch the **Control** button at the Checkpoint marker

to show choices: **No, cancel Control**; **Yes, Control for new Stage.**

The time for a **Control** will be recorded in the **log** 📋 when the button is touched. In this example, the time will be **20:46**.

If the choice is **Yes, Control for new Stage**, distance will be set to zero and the next **Start Time** can be input by touching the **1st CAST** button to open a view where CAST conditions can be input as shown in the display below.
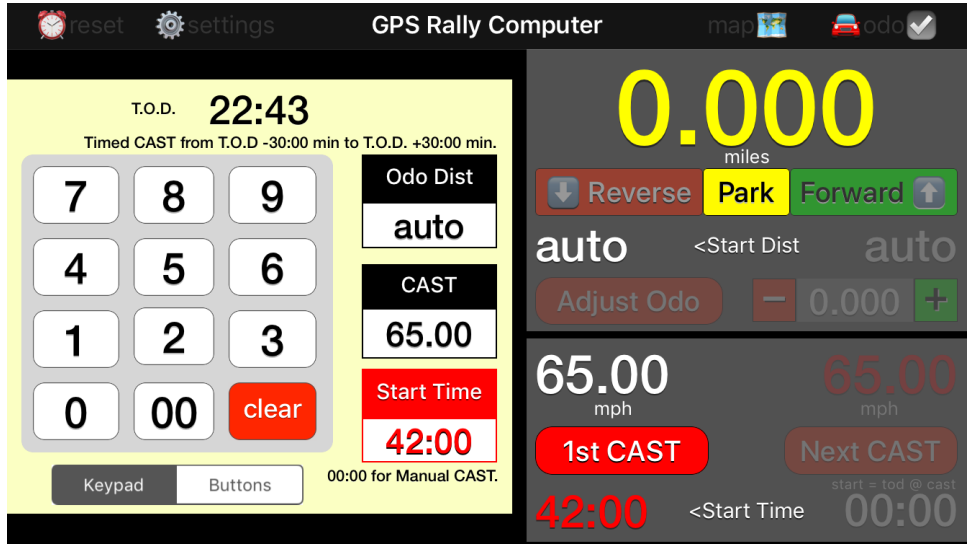
In this example, the **CAST 65.00** starting time has been changed to **42:00**, which presumably is an instruction given to you by the Checkpoint Staff.

Notice that the odometer is in the **Park** position and that the odometer reading has been set to **0.000**.

When you touch the **1st CAST** button again, the popup view will close and the following display will appear. The Scheduled Start Time of **42:00** minutes is shown in two places: in the **T.Calc** field and below the **1st CAST** button.

The green button in the center of the display is the locked CAST button labeled, in this example, Start at Outmarker CAST 65.00. The countdown time is displayed below the padlock icon and when the time reaches 00:00 the CAST of **65.00** mph will be executed and the mileage will advance from 0.000 as the Forward ⬆ button will also be activated.

Typically, you leave the Checkpoint and proceed to the Outmarker identified by the Checkpoint Staff or mentioned in the Route Instructions. The Outmarker for a new stage typically starts at **0.000** distance, but if some other distance is given by the Checkpoint Staff or in the Route Instructions, use the Odo Dist option in the 1st CAST view to set the Outmarker distance.

Caution: Do not use the Sync Odos option in the 🚗 odo ✅ view for this purpose. But, you may use this option after you have started the new stage.

The Odo Dist option allows inputs to two decimal places. However, if you need three-decimal place accuracy, use the Adjust Odo button to add or subtract the appropriate increment.

You may wait at the Outmarker until the departure or start time, but you could chose to leave the Outmarker early. If you leave early, you should unlock to reveal the active Start at Outmarker CAST 65.00 button and touch it to begin the next stage of the rally.

If, prior to completing the countdown to 00:00, the CAST button is unlocked and touched, then the Forward ⬆ button will be activated and timing error will be computed. The timing error will immediately show that you are ahead of pace by the amount of time remaining until the Scheduled Start Time because you have begun the next stage early. By the way, it is possible to have a Start Time earlier than the T.O.Day, but you will have to manually activate the Start at Outmarker CAST xx.xx rather than wait for a countdown clock to CAST automatically at zero.