Buttonwillow Raceway Park - Counter Clockwise Direction

*DISCLAIMER: The following information is provided by the Golden Gate Region of the Porsche Club of America as a orientation to this track. It is intended to be used only as a guideline and intended only for use by drivers at GGR events. All drivers are responsible for determining the safest and best approach for themselves and their cars. Under no circumstances will the region, its officers, event organizers, instructors or other members be responsible for any consequences to any driver as a result of completely or partially following the recommendations herein. This exclusion applies to events conducted by GGR as well as other events where drivers may choose to use these guidelines to assist in learning to drive this track.
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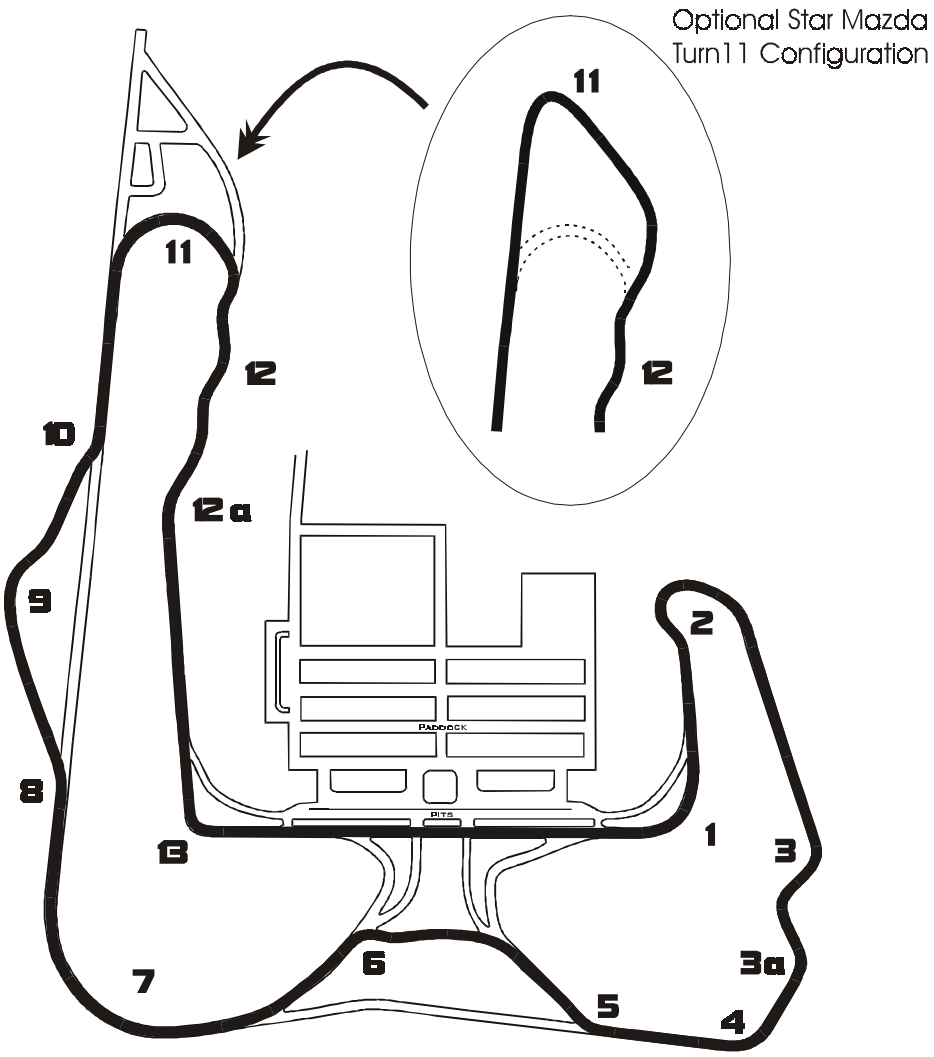


Buttonwillow Raceway Park is owned and operated by the Southern California SCCA. It is in a relatively arid environment and relatively flat. It has been laid out to facilitate a great number of possible configurations. It contains a number of interesting challenges and is marvelously fun to drive. Directions: From the Bay Area, get on I-5 South. You're going almost to Bakersfield. About 12 miles south of the Hwy 46 interchange (Paso Robles to the right, Wasco to the left) you'll find the Lerdo Highway (Shafter to the left). Take this exit, turn right, go one half mile and turn left into Buttonwillow

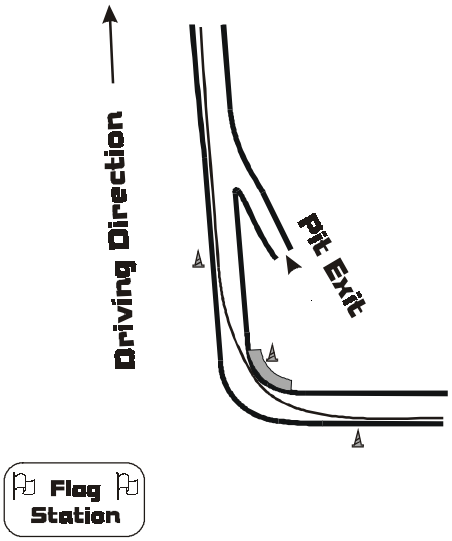
Due to the number of configuration, official track maps offer turn names rather than numbers. This guide will use the numbers as originally assigned by the track. The turns are numbered in the clockwise direction, no matter which way the course is being run.

More than any other California track, Buttonwillow links the various corners together, providing little mental relaxation space for the driver. Many turns, as will be seen, are not so much completed as taken as far as they can until the necessity for dealing with the next turn takes over. This creates a situation in which the preparation for execution of the next corner routinely *must* (not the usual *should*) take place during the previous corner. It is assumed that all apexes are hit correctly within about 3 inches.

The text occasionally indicates likely gear choices as a very general guideline only. The gear chosen will, in many cases, depend not only on the gearing, rev limit and torque curve of the car, but also on driver preference. There are places where higher gears may add smoothness and may make a high-horsepower or low-available-traction car more controllable but at the expense of critical acceleration. Cars with narrow horsepower bands obviously need more careful gear selection; cars with broad torque curves may care less.

The lines described in this document are qualifying or time trial lines. With appropriate adjustments for the specifics of your car, they should produce the fastest laptimes available for your driving level.

Turn 13



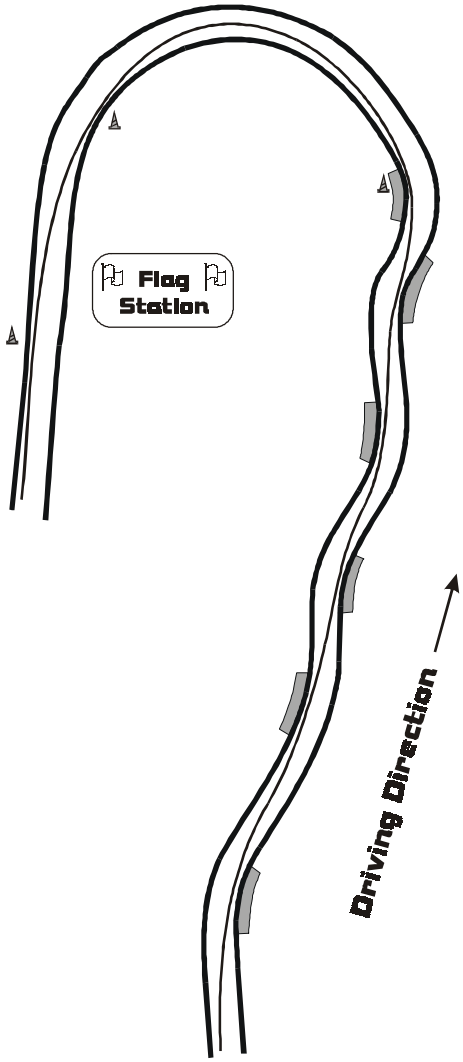
Turn 13, medium righthand turn leading toward the esses:

At the end of the long straight, entering 13 will require substantial braking. Most cars will use 3rd gear for this turn. Enter the turn from the left edge of the track.

The turn has a depression at the apex, which will unsettle the car, letting it go and then grabbing it again. This results in a slightly jerky feel to the turn, even when it is done optimally. As this turn connects two straights, a slightly late apex is needed to avoid losing substantial time on the ensuing straight. Move the car slightly into the berm,

and exit on the left under full power. 4th gear will be needed soon for many cars.

Turns 12a, 12, and Turn 11: "The Esses"



Turn 12A, entering the esses:

A slight downward adjustment of speed is needed to get through this turn.

A slightly late apex will set the car up for the first part of the esses.

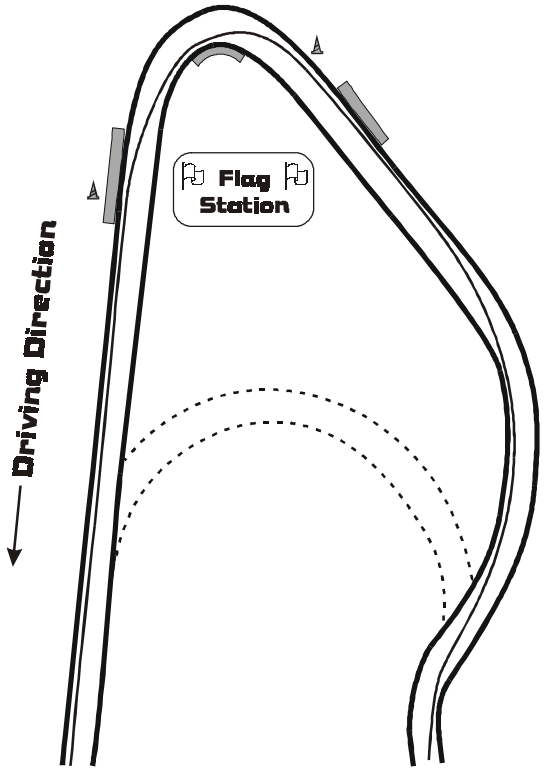
Turn 12, the esses:

The path through here is straight for the first part, letting the car bounce off the berms, using up to half of each berm.

The car should be accelerating strongly through this section.

At the end of the esses the car must be turned slightly to the left. For some cars it is possible to make this rotation based primarily on a small lift of the throttle. Other cars that are able to gain a great deal of speed through the esses may have to brake slightly.

Turn 11 using the Star Mazda option



When the Star Mazda option is used for turn 11, the track is extended past the last turn of the esses in a long lazy arc, followed by a very sharp lefthand turn. The straight approaching turn 10 is also extended, providing an excellent opportunity for passing.

As you pass the last apex berm of the esses, the car will naturally tend to move left across the track. Steer right enough to delay reaching the left edge of the track as long as possible, while continuing to accelerate.

Transition smoothly into a lefthand turn, initially following the left edge of the track, then gradually moving back across to the right. Keep your eyes well forward, aiming to reach the right edge of the track near the start of a long, straight berm.

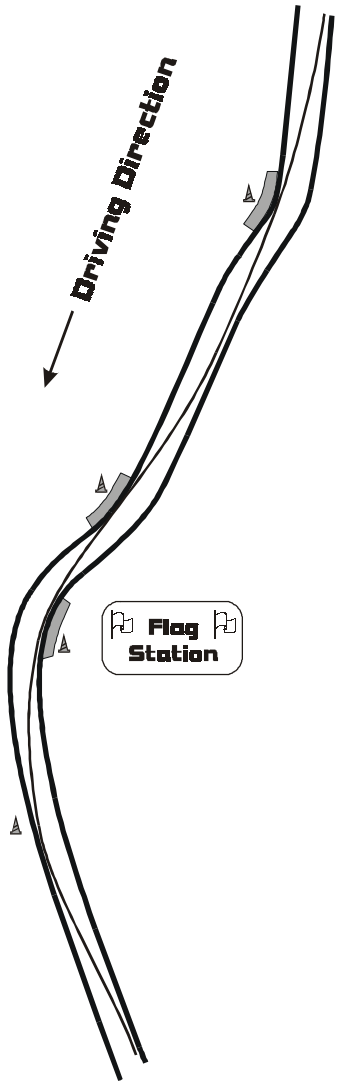
Near the berm the track straightens, providing an ideal braking zone to set up for the sharp lefthand Star Mazda turn.

Brake deeply into the turn, resisting the temptation to turn in early. Stay just off the berm under braking to avoid tires grabbing on the unpredictable painted surface. The Star Mazda turn is more than 90 degrees, demanding a very late apex

Done properly, power can be applied agressively immediately upon turning in, through a late apex half way onto the wide, flat berm.

Exit to the right, past the end of the berm and under full power down the straight. This long wide straight towards Turn 10 and Magic Mountain offers ample opportunity to let several cars pass.

Turn 10 and Turn 9



Turn 10 is a gentle right approaching Magic Mountain.

In order to set up for turn 9 on the top of the mountain, turn 10 needs to be taken with a very late apex.

The turn is well less than 90 degrees, so an early, large-arc turn in will still achieve a late apex.

After the exit toward the left side of the track, more the car as far to the right as possible to set up for turn 9

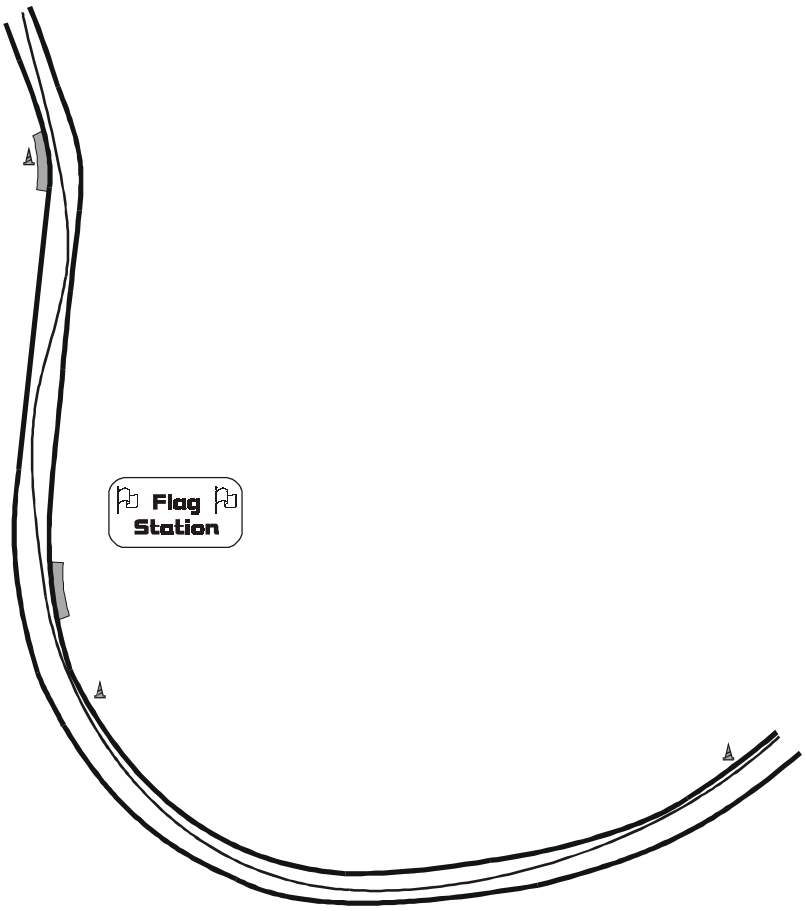
Turn 9 is the left on top of Magic Mountain. This is a blind turn that requires more-than-normal practice to get it right. Begin slowly; there are penalties for errors in this section.

Entry is from the right side of the track. Braking is required and most cars will be in third for this turn.

The apex is late and near the end of the apex berm at the top of Magic Mountain. The car should have been turned so that it is traveling relatively straight when it crosses the apex. At the top of the hill the car will be very light and will not turn effectively.

If the turn is done properly, the car will use most of the track to the right. Too early an apex coupled with aggressive speed will put the car sideways into the dirt at a high speed. Somewhat after the exit most cars will shift to 4th.

Turn 8, and Turn7: “NASCAR”



Turn 8 is an easy right leading toward NASCAR: This turn can be taken flat out in most cars.

After turn 9, move the car as far as possible to the left (you won't be able to get all the way to the left) until you need to turn to a late apex at 8.

Hit the apex tightly …

… and let the car move to the left. There is adequate time to get the car back to the right for the entry to turn 7.

Straight toward NASCAR: Though this is a short straight, it provides an opportunity to let cars pass. If you do this, you can either stay left for a moment, letting the car pass on the right, or move quickly to the right and let them pass on the left. Cars that passed on the left side of the track may not have an optimal entry to turn 7 and may need to adjust their speed downward to account for this.

Turn 7, NASCAR

Turn 7 is a sweeping, banked lefthand turn. There are several available approaches to this turn; don't be surprised to see cars running it with a variety of methods.

Enter from the right.

The first berm you encounter is not used when driving in this direction.

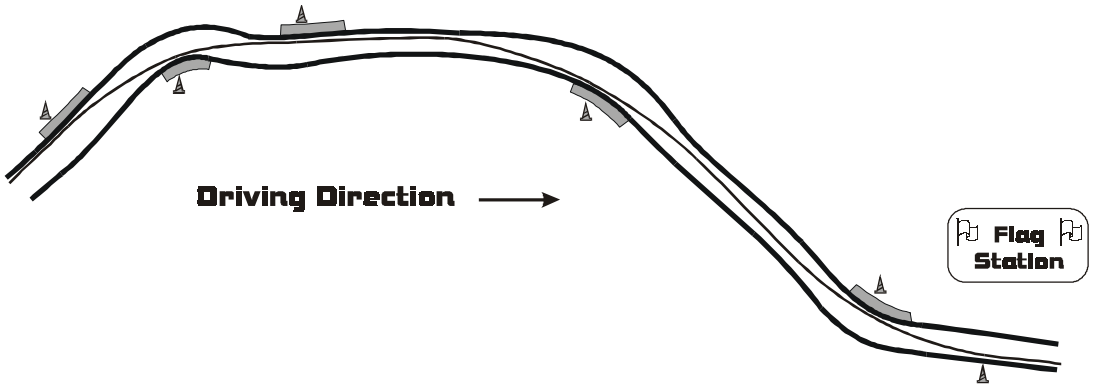
Move smoothly toward an apex at about the middle of the turn. Once at the apex, do not release the car, but continue to force some turning.

Eventually the speed will force the car to the outside.

Once at the outside, if the car is on the proper line, the steering input is held the same …

… and the car smoothly heads into the infield, just touching the apex berm of the unnumbered turn. This can all be done in one graceful arc.

Through "The Infield": Turn 6 and Turn 5



Turn 6 is a dogleg right in the infield:

Slight braking is needed before turn 6 in the infield and, for most cars, a downshift to 3rd. The turn is a well less than 90 degrees, so turn in slightly earlier than you would think …

… in order to achieve a slightly-late apex.

Finish near the right of the track, past the protruding berm.

The next turn is an unnumbered turn, another dogleg right in the infield: This turn begins before 6 is complete, and should be a very late apex to set up turn 5. As turn 6 is being completed, watch for the point at which this turn must be initiated.

Hit the very late apex (no berm) and try not to let the car drift much more than halfway to the right side of the track.

Turn 5

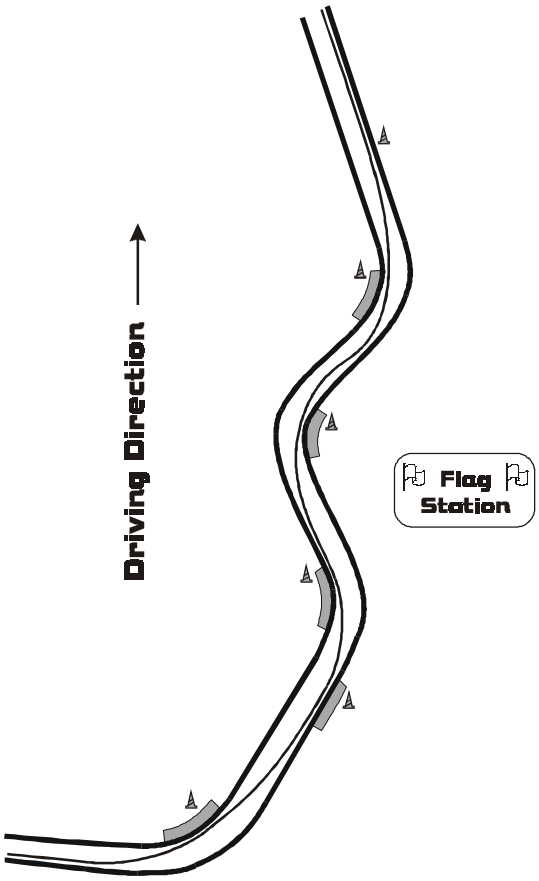
Turn 5 is a gentle left out of the infield:

Using a very large arc, and starting from as far right as possible, …

hit a late apex to get onto the brief straight before the smaller mountain.

Passing: The section between 5 and 4 usually offers an opportunity to let cars pass. If cars have caught up with you, and depending upon the passing rules, in effect, try to let at least one by in this section. Most cars will shift into 4th gear if they aren't there already.

Turn 4, and Turns 3a and 3: “The Whoops”



Turn 4 is a medium left up into The Whoops:

The exit of turn 5 will leave you on the right side of the track, which is perfect for entering turn 4. Most cars will need some braking. Some cars will shift to 3rd gear here, while others may wait until turn 3A.

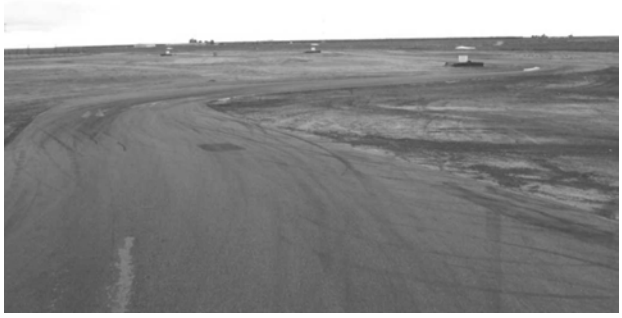
Use a slightly-late apex and apply the power as soon as possible.

Turn 3A, cresting left, is the first of three tightly-linked turns. The approach to 3A from this direction is very tricky.

The best method is accelerate out of four, allowing the car to move to the right, but being mindful that a tight lefthand turn is imminent.

As you move up the hill, force the car to the left, looking for an extremely late apex at 3A. Your speed will be decreasing due to the ascent of the hill and the turning effort, aided very carefully by brakes while turning. If all goes well the apex and exit of 3A will be nearly the same and the car will not move to the right side of the track. If you are not already in 3rd gear you'll need to shift while you're doing all this as well.

The second of three tightly-linked turns is an unnumbered sharp turn to the right.



If success was achieved in turn 3A, you'll be set up to make a very late apex for this turn as well. This is critical, as turn 3 cannot be done properly if this turn does not have a very late apex.

Be patient, turn in only when you can hit the apex but not let the car more than halfway across the track after the apex. Finish by moving the car to the right as much as possible to prepare for turn 3.

Turn 3 is a sharp left onto a straight, the third of the three tightly-linked turns.

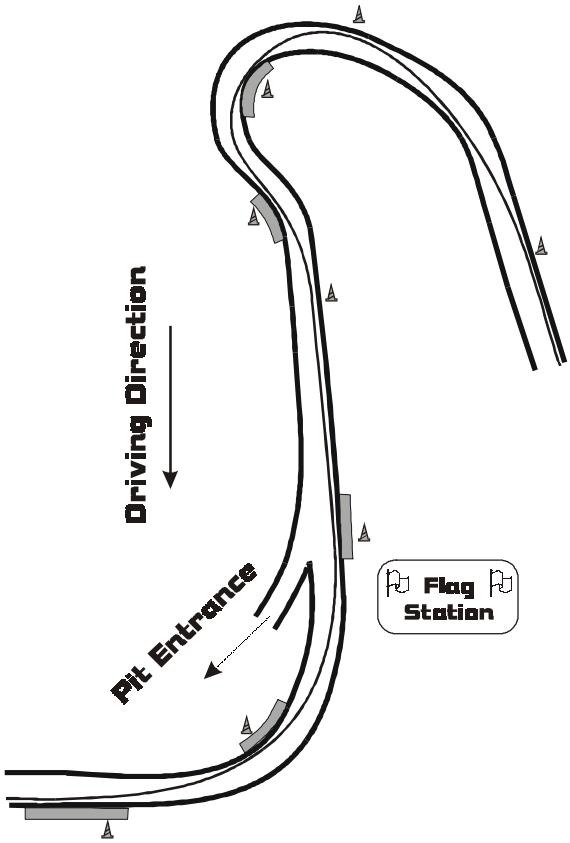
Due to the following straight this turn needs to be taken using a somewhat late apex. Enter from the right edge of the track (if you can't get close to there, you need to revise your approach to the previous turn), …

… rotate the car toward a late apex and, as soon as possible, apply full power.

Finish on the right of the track.

You will shift to 4th on the straight between 3 and 2. This section also offers an excellent passing opportunity. Depending upon the passing rules in effect, let by any cars that have grouped up behind you. It is normally possible to let 3 or 4 cars pass during this straight.

Turn 1 and Turn 2: "Buttonhook"



Turn 2 is a left buttonhook.

This turn is set up by staying to the right until the first part of the turn (the gentle bend leftward) is available.

Rotate the car slightly onto a line that will pass near an early, leftside apex in the gentle bend.

Then apply strong braking, which will take the car past the first apex to the outside portion of the tight part of turn 2. 2nd gear will be needed before the next car rotation.

Continue slight trail braking as the car is turned to the left.

Done properly, as soon as the car is pointed out of the turn the throttle can be applied strongly.

You will touch the inside berm of turn 2, …

… then the outside (right) berm at the exit of 2. This path will also point you across the track, to the left side, which will prepare you for turn 1. Soon thereafter you will shift to 3rd.

Turn 1 is a medium right-hander onto the front straight:, The pit entrance is on the left, just before the entrance to this turn. Turn 1 requires a late apex in order to optimize exit speed down the main straight.

Though a 90-degree turn, turn 1 has the general form of a sweeper. Because of the shape of the turn, the car must be moved slightly to the right before the turn is properly begun. For many drivers this results in a tendency to get to the apex too soon. There are two penalties for this. First, the power can't be applied as early, resulting in less speed on the front straight. More importantly, cars that apex too soon will have trouble staying on the track at the exit. Hanging a left-rear tire into the dirt at the exit of turn 1 can easily spin the car and shunt it into the main wall along the front straight.

Combat the visual problems by being ready, at the entry to the turn, to move the car slightly to the right, but don't begin the turn until you are sure you're going to hit

a late apex.

You will finish on the left side of the main straight.

On the front straight, in addition to staying on the throttle and shifting the car, use the front straight first to let any cars behind you get past you. If you need to lift out of the throttle to make this happen, do so. Once the cars that need to pass are safely on their way by, turn your attention to your car. Check the guages (temp, oil pressure, fuel) and note how the car is feeling.

That is one lap of the typical GGR configuration for running Buttonwillow in the counter-clockwise direction.

Credits: The GGR track driving documents were prepared primarily by Hank Watts (GGR Chief Instructor) and Brad Maker. Hank did the photography and the text first draft; he had the final say about the text and is therefore responsible for it. Brad did the larger amount of work, putting the text, photos and graphics together, graphic parsing and editing, the entire layout and provided input to the text as well. Others contributed to the photography process (Neil Yonk, Fred Nelson, Warren Walker, Evan Williams) and in suggesting modification and additions to the text (especially John Tavernetti). Source trackmaps were by Trevor Swallow.