

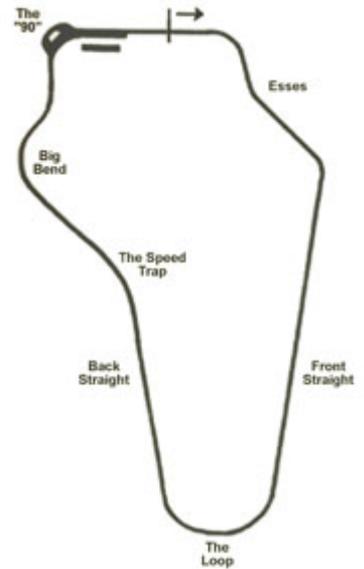


# United States Grand Prix

## Watkins Glen Grand Prix Circuit



**THE 2.3 MILE** Watkins Glen circuit, located in upstate New York, has a fairly simple layout and the shortest lap time of any circuit on the 67 calendar. Don't let this fool you into thinking this is an easy circuit, however. The short lap times, of just over a minute, will mean that for most of the race you'll be in traffic even if you are the leader. So your ability to safely pass other cars is essential for a win here. Also, the Loop is quite a difficult corner which is just begging you to push too hard and slide off onto the grass, and then most likely into the fence. A smooth approach combined with great trail-braking skills and a sense of when to push into a corner and when to go for exit speed will yield a good lap time. The start is quite a difficult one here. The start/finish line is just a few feet from turn one, so it is extremely difficult to get off the line without sliding the car in one direction or another. Then as you'll probably be two wide until midway through the esses, you have to be extremely aware of any cars around you. And if all that wasn't enough to make this track fun, the track has a significant crown to it. So if you come into a braking zone sideways you are fairly likely to be exiting it even more sideways, and probably backwards towards a fence at excessively high speeds.



### **CAR SETUP:**

The setup for Watkins Glen isn't an easy one. But before you try and fine tune anything I'd suggest doing lots of laps. They don't take much time and they will help you much more than setup changes will. Remember that you need to brake in a straight line for all the major turns. If you are losing the rear end under braking, first check the replay to see if you are braking in a straight line or not. If you are not, then work on that before changing any setup options.

After you have the perfect line down and want to find that extra tenth, or even second, go to the garage. A car that oversteers will kill you at the Loop and at the Big Bend. The car should definitely be neutral, with even a little bit of understeer. In all the major braking turns, you can use trail braking to rotate the car into the turn, so you don't need a loose car to turn in quickly.

The anti-roll bars can be medium to stiff in their settings, as you do have some quite fast sweeping turns. A car that is rolling heavily will be slow through these and won't help your cause for speed. The shocks themselves could be a little softer than the roll bars. There is only one slow corner where grip is important for acceleration. However, in both the Loop and Big Bend you will need good front end grip during mid corner, so don't go too stiff on the shocks. If you have soft shocks but are still getting a lot of mid-corner understeer, you may want to try softening your front anti-roll bar.

Use the front straight to set top gear. You should be able to get to around 180 before the Loop. The Esses can be used to set fourth gear. You don't want to be up-shifting during any major cornering moves as you go through the esses. Set fourth gear to take you almost all the way through the Esses. Changing to fifth about midway through the final right hand bend of the Esses is about right. Third gear should take you all the way through the Loop. A gear that lets you get to the edge of the track, near the end of the armco as you exit the Loop before having to shift into fourth will work well. This also offers you the opportunity to short shift into fourth gear before you have exited the Loop if you prefer. Finally, select a second gear that gives you good traction out of the "90" and a first gear that gets you off the line well. The only other important aspect of setting up the car is the brake balance. You don't want to push it too far forward because you'll lock the fronts up all the time and won't get the trail-brake rotation you need to turn the car into the corners. So take it a few clicks back from where you are locking the fronts and you should be pretty close to a setting that works for you. Remember that if you are spinning under braking the first place to look is the replay to watch your line, and not the brake balance.

### **GOALS:**

You should aim for a qualifying lap of about 1:04.80 to 1:05.80. That should put you pretty far up the grid.

During the race you should aim for 1:05.50 to 1:06.50, depending on fuel loads, for your lap times if you don't encounter traffic.

You won't lose several seconds just by reading this, that takes practice and experience. But, hopefully, this will help you get there faster.

### **THE RACE:**

The key to a good race at the Glen is your ability to handle traffic. You will be in traffic for most of your race. If you are leading you need to be able to lap cars quickly and then get right back on your pace afterwards. However, don't push too hard to do so as it is quite easy to lose it under braking if you are in the middle of the track because of the crown of the road. The start is quite difficult because of the proximity to turn one. You need to be aware of all the other cars as you go into turn one and then the esses. You will be tempted to try and pass into the Loop on lap one. Be careful about doing this as you'll have cold tyres and it's a hard place to pass on any lap. During the race a lot of people will go off here, so sometimes braking a little early will see you gain, or at least keep, a position as your opposition goes very wide.

## TURN ONE:

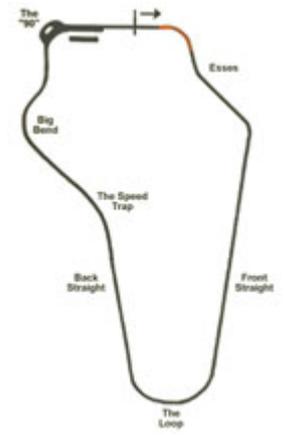
Entrance speed: approximately 125 mph [202 kph]

Speed through the corner: approximately 115 mph [185 kph]

Arrival time at the corner: 0.00 seconds

Time to negotiate the corner: 4.64 seconds

Exit time of the corner: 4.64 seconds



Turn one seems fairly simple, but a clean exit line is extremely important as that is what will determine your line and speed through the esses. As your exit from the esses determines your final top speed down the front straight, you can see how turn one becomes a huge factor in your lap time. Get a bad exit and you won't recover until after the Loop.

Set the car up on the left side of the track as you approach this turn. You'll be in second gear exiting the "90" and should get into third a little bit before reaching the start/finish line. You don't need to brake at all for this turn, just a little lift off the power at the right time to help turn the car into the apex. The most important thing is that you exit this turn on the right side of the track with no sliding about. If you have to go through the turn slower to do this, then do so, as you'll gain time in the end.



Begin to turn into the corner just before the start/finish line. Follow the racing groove through the turn, shifting to fourth about the same time you reach the hay bails on your left. You should stay under full power until you shift to fourth. Now ease off slightly, and try to keep a constant speed through the rest of the turn. You may lose a few mph in your efforts to keep the car to the right, but don't worry about that.

Once you reach the "Champion" sign on the left you should start trying to get back to full power. Remember to stay to the right as you do so. When you finally do get the car going in a straight line along the right you will be able to get back to full power before reaching the esses.

## THE ESSES:

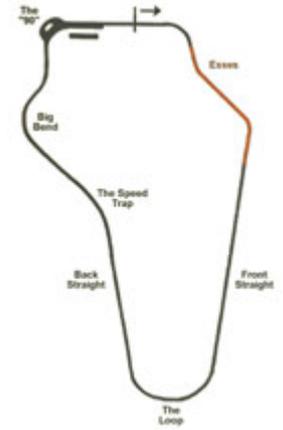
Entrance speed: approximately 130 mph [210 kph]

Speed through the corner: approximately 120 mph [193 kph]

Arrival time at the corner: 5.36 seconds

Time to negotiate the corner: 8.78 seconds

Exit time of the corner: 14.14 seconds



The left-right sweep of the Esses is not really that difficult, but like turn one, they are a large factor in your lap time as you line through them will determine your final top speed down the front straight. You



don't want to be scrubbing off lots of speed with excessive wheel lock or movement through the Esses, so be smooth and you'll be faster.

The left hand bend is the hard one. You'll be in fourth on the right side of the track as you approach it. You don't need to brake at all for the Esses. Just as the racing groove darkens a little begin to turn the car in and ease off the power just a hair. Move the car over to the left side of the track right next to the curbing. Make sure you don't touch the curbs as they will upset your car and throw you into a spin. Use the power to keep the car pointing in the right direction. You'll have to ease off the power a little more (but only slightly) as you climb the hill into the first left hander.

The exit of the left hander is a little tricky. The hill flattens out right as you finish the turn, so you have to be prepared for the rear to get light. To compensate for this, just before you crest this hill, straighten the wheel out, even steering right a little, and make sure you are back to full power. This will plant the rear wheels for you, and get the car pointing across the track towards the right side, which is what you want. If everything was done right, you should go smoothly over to the right, ending up at the beginning of the armco. Don't get too close, or you risk leaving your right front wheel behind.



Continue under full power right next to the armco as you go through the right hand bend. You'll probably have to shift up to fifth about midway through this turn. Remember to avoid excessive wheel movement. Be smooth and when you see the front straight coming into view, start to unwind the wheel a little. You should end the turn against the left side of the track, just after the armco ends.

## THE LOOP:

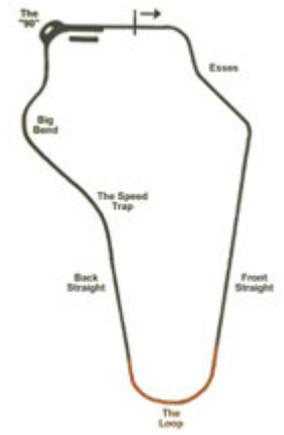
Entrance speed: approximately 180 mph [290 kph]

Speed through the corner: approximately 85-90 mph [137-145 kph]

Arrival time at the corner: 21.94 seconds

Time to negotiate the corner: 12.16 seconds

Exit time of the corner: 34.10 seconds



You get a slight rest before tackling the Loop. The front straight is a great place to draft someone down, especially if you get a good exit from the Esses. Just remember not to go too deep into the Loop, especially if you are in the middle of the track. There is a significant crown to the track which can throw your car one way or the other as you brake. This could easily end your day, as well as the car you are trying to pass. The best defense if you are being overtaken is to brake a little early. I've seen lots of cars go off trying to overtake me because they braked too late, and I just cruised round the turn, keeping my position.



You'll be at top speed on the left side of the track as you approach this turn. There is a sign to the left just before the track disappears down the hill. Go past this sign, wait a beat, and then brake hard and shift down two gears. As you crest the hill, ease off the brakes a little to give some more grip to the rear wheels. Remember to stay to the left. You don't want to get onto the crown of the road at this point. A moment after cresting the hill, the rear will get very light as you start to go down it. Use this to turn the car into the apex. Don't turn the wheel at first, but let the brakes turn you.

As you continue to rotate the car farther towards the apex, ease off the brakes even more, until they are released altogether. The first part of your turn in may seem quite sudden, so be prepared for some opposite lock to correct this. Adding a little power as you turn in will also help plant the rear wheels more and keep the car from spinning. As you go through the turn, use the power to keep the rear behind you. If you begin to understeer a little, try tapping the brakes to get the car back on line.



You should be quite near the curb as you approach the access road on the right. At this point, begin to get the power down, while keeping the car right against the curb. You want to smoothly increase the amount of power to full as you begin to exit the corner. Make sure you don't do it too quickly, or you'll slid the rear out. You should be right on this limit as you exit the turn. A good drift would be perfect. Your exit is very important, as it will determine your speed all the way through to the Big Bend, so a messy exit will cost you a lot of time. Get the car to line up right near the edge of the grass at the end of the turn. You should be able to get into fourth by the end of the armco.



## BIG BEND:

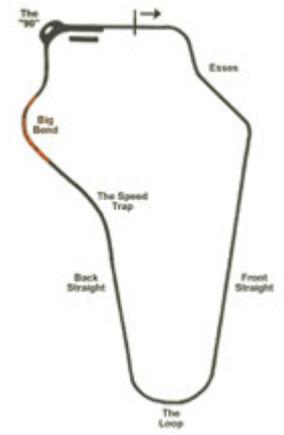
Entrance speed: approximately 177 mph [285 kph]

Speed through the corner: approximately 90 mph [145 kph]

Arrival time at the corner: 45.98 seconds

Time to negotiate the corner: 5.75 seconds

Exit time of the corner: 51.73 seconds



The Big Bend is the final fast corner at the Glen. It can be an overtaking opportunity if you are very smooth approaching it. It is preceded by a long left hander which has only one truly fast groove. So to overtake you need to leave this groove and continue to hold the car steady, which can be quite difficult.



The left hander is taken flat. The crown of the track will help to push you round the turn as long as you stay to the left side of the track. Get in the middle or to the right and it becomes quite difficult to continue around the turn safely at full power. The turn ends just a hair before you need to start braking for the Big Bend, so being under control is imperative as you exit the left hander.

You'll be in top gear at pretty much top speed as you come into the braking zone for this turn. You should be on the left side of the track when you start to brake. As you pass the end of the armco on the right, brake as hard as possible, shift down two gears, and continue in a straight line. Follow the racing groove into the turn, trailing off the brakes as you do so. This will help to turn the car into the turn. You may need to add a little power as you approach the apex in order to keep the rear end under you.



About two thirds of the way through the turn start to get back on the power. Quickly increase your acceleration to full as you let the car exit towards the left side of the track.

## THE "90":

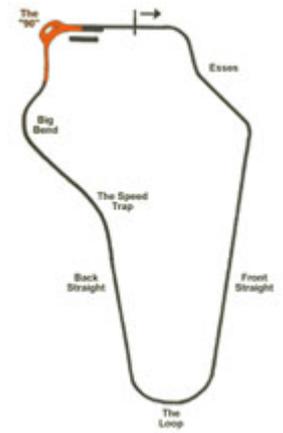
Entrance speed: approximately 130 mph [210 kph]

Speed through the corner: approximately 60 mph [97 kph]

Arrival time at the corner: 55.44 seconds

Time to negotiate the corner: 5.42 seconds

Exit time of the corner: 1 minute 0.86 seconds



Just like the Big Bend, the "90" is preceded by a fast left hander, from which you have to brake right as you exit. As you exit the Big Bend you should be in third gear moving across the track. Make sure you get there before having to turn into the left hander, as the crown of the track will help push you into the turn. Shift up to fourth about half way through the left hander. This will help steady the car a little more as you approach the exit.

Braking can be quite tricky for this corner. If you brake too soon, you are likely to brake too softly. This could upset your car quite a bit if you are straddling the crown of the track. The usual result is you spin towards the left. So to prevent this, brake as hard as possible right when you finish the left hander. You should be on the left side of the track as you exit that curve. As you brake you need to keep the car on the left side of the track, or you'll get caught out by the crown of the track.



As you brake, shift down to second gear. Just before the armco for the pitlane on the right starts, begin to turn the car into the corner. This is tricky. The corner is banked a little to help you turn in, so the car often turns in quicker than you expect. Also as you trail off the brakes you'll rotate the car into the corner. All of this makes it quite difficult to judge your turning in point. Turning in a beat too early will see you riding the curbs and getting a slow exit. A beat too late, and you'll understeer off the track. Several tries may be needed to get it right. Also, as you get to the curbing you will need to turn the wheel a little more to get round the corner. (The apex of this corner is just past where you reach the curbing - which is another reason it is difficult.)



Once at the apex, start to unwind the wheel and begin to get back to full power. There is a lot of extra track to your left if you get a little sideways. But, of course, a smooth exit will give you the most speed down the pit straight.