



**LAPPING DAYS**  
PERFORMANCE DRIVING AT THE TRACK

**MILLER MOTORSPORTS PARK**

**WEST TRACK REVIEW**

**Become better drivers and safer drivers  
Become ProActive, not ReActive!**

Car control is not inborn, it is learned. Today's track driving allows us to explore precision driving in a safe environment.

Interestingly enough, track driving will make us much better street drivers as well. Track driving simulates real world conditions and the skills learned today can be directly applied to day to day driving.

*There are plenty of sensory inputs from behind the wheel...*

- *Eyes*
- *Ears*
- *Hands*
- *Feet*
- *Seat*

*Today we will learn to use all of them!*

At first, I imagine you will do things that surprise you, you won't know quite what happened, other than something was upsetting, anxiety producing. The white knuckle syndrome, fight or flight, adrenaline rush takes hold, poor decision making in a panic situation.

We want today's reactions to become proactions, to become instinctual. We want to anticipate what is coming, anticipate what we will do many seconds ahead of where we are now.

**We want to be ProActive, not ReActive!**

# Classroom Session 1

## General Driving Discussion

### Driver Position

seating position ... upright, and forward!

hands on wheel at 9 and 3 o'clock positions, or pre-positioning for tight turns

mirrors adjusted properly ... left-right should be outboard of the side of car

### VISION... peripheral awareness... 180 degree vision

**Your car goes where you look... *look ahead***, where you want to go!

Look *ahead*, look *through*, look *left* and *right* look *out* the side windows

Looking ahead slows things down, gives us time to do things slowly

**Anticipation** ... Smooth left-right-left-right transitions

**Look ahead** ... scan forward left and right

**Turn on the proper line**... like a ski racer, set up for the next corner

***Look Ahead, We Choose, We don't React!***

### Braking ... Slow in, Fast out. Smooth inputs... Squeeze, don't Jab!

squeeze on the brakes firmly, and early...Do NOT "stab" the pedals

firm squeeze allows suspension to adjust, stabbing throws car off balance

Braking is done in a straight line!

come off gently, almost more important than how we go on

Braking intensity - 10-8-6-4-3-2-1 *Breathe* off the pedal smoothly

### Shifting ...

Shifting does NOT slow the car, it sets you up for corner exit acceleration

Downshifts are done later in the braking zone, but BEFORE turn-in

Do not downshift IN a corner ... Do not upshift IN a corner

### Accelerating ...

Smooth inputs... Accelerate slowly and smoothly

Squeeze onto the throttle, do not "floor it"

Carry speed and momentum, do not "take it off", then "put it on"

### Car Balance... contact patch management

front loaded under braking

rear loaded under acceleration

left or right front becomes loaded under braking while turning

balance is critical, anticipation of future moves helps keep car balanced

## **UNDERSTEER VS OVERSTEER**

**Understeer**...built in to today's cars, front end won't turn, plows straight  
Adding steering makes things worse since car has lost front end grip  
Correct by opening the wheel (counterintuitive) lift off gas gently

**Oversteer** .. rear end tries to come around the front  
Correct by steering in the same direction the rear is going...  
LOOK where you want to go, steer toward where you want to go  
Corrections are smooth

**Over Correcting** If you drop two wheels (or 3 or 4) off the pavement,  
Stay off, slow down, check mirrors and gently come back on when safe!  
Don't overcorrect, give the car a chance to catch it's breath!

***CPR ... In a slide, Correct, Pause, Recover!***

***In a slide, When in doubt, both feet out!***

In a small slide, stay off the brake, breathe off the gas, correct the drift.

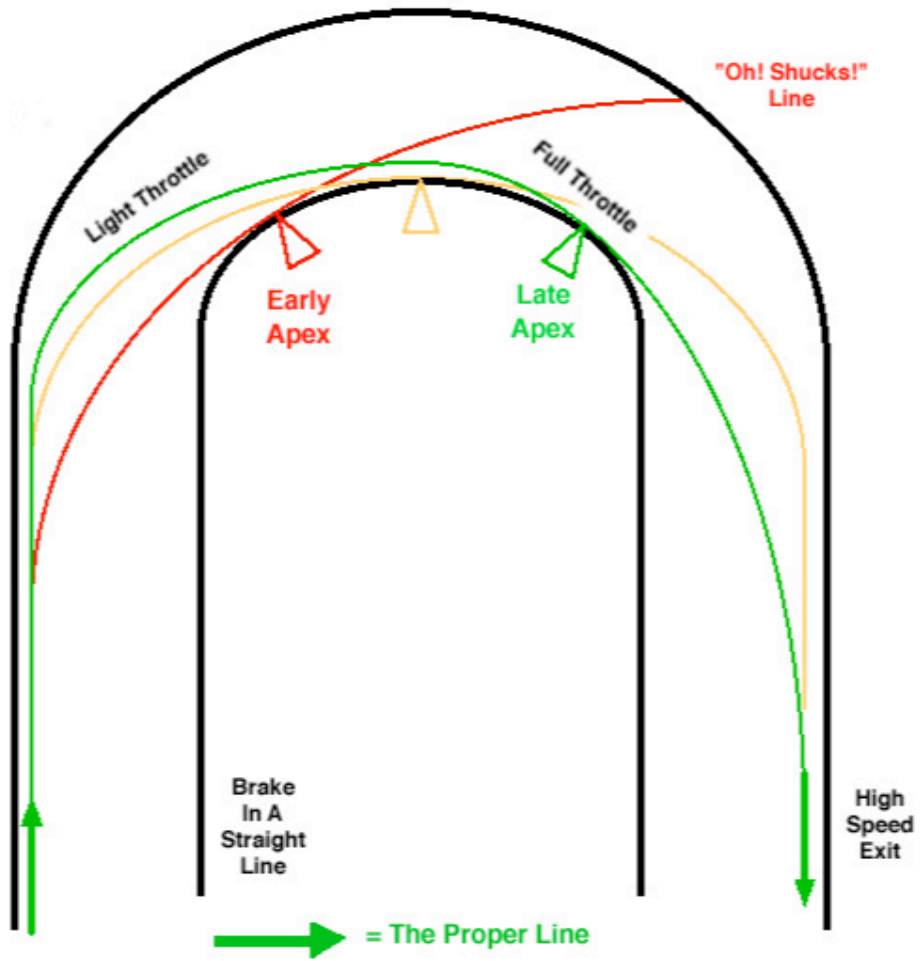
***In a spin, both feet in!***

In a big rotation, when you cannot correct it,  
lock the brakes to keep a predictable path and slow as fast as possible  
push in the clutch to keep the engine from stalling or spinning backward

## **OFF TRACK EXCURSIONS!**

**IF... you are heading quickly toward the outside of the pavement, and the car is not pointed in the direction you need to go, open the wheel AND >>>**

**DRIVE OFF STRAIGHT with authority. as if you meant to do it.  
SLOW DOWN ... DO NOT come back on until you are slowed and it is clear  
IF IN DOUBT about coming on, STOP and wait for a worker to wave you on  
DO NOT GO OFF SIDEWAYS**



## **CORNERING SKILLS (see page 5 attached)**

### **The Driving Line ... What is it, and Why do I drive it?**

**The LINE is the fastest, safest, and smoothest way around a track**

**The shape of the track dictates the line**

**The smoother and larger the radius, the faster we can go**

### **Inside – Outside – Inside**

Creates a much larger turning arc (radius) and allows us to carry more speed

Use ALL of the road... (discuss Braking cones, turn-in, apex- track out (exit))

### **What is an Apex?**

An apex is the inner most edge of a turn, and the slowest part of a turn

At the apex we should have 100% of the turning input completed

At the apex we should begin unwinding (opening) the wheel toward straight

At the apex we should begin squeezing on to the throttle

### *Geometric Apex*

The exact halfway point in a corner (45 degrees of a 90, 90 degrees of a 180)

### *Early Apex .. turning too soon, bad idea!*

Touching the inner most part of a turn before the halfway point (turning in early)

Early apex causes all sorts of problems

- forces you to add steering input at the exit of the corner
- prevents you from adding throttle for proper car balance
- forces you in some cases to drop wheels off the road

### *Late Apex .. patience, turn 'late', good idea!*

Touching the inner most part of a turn AFTER the geometric center of the corner

- patience at turn in, and a late apex is the safest way through a corner
- allows 100% the steering input to be done by the apex
- late apex allows us to unwind the wheel coming onto the straight
- late apex gives lots of road to work with at the exit of the corner
- late apex allows us to add throttle to balance the car with confidence

**LATE APEX REQUIRES PATIENCE!**

**DON'T CHEAT THE WHEEL IN WHEN VISUALLY SCANNING THROUGH CORNER**

**DON'T TURN EARLY WHEN YOU INTUITIVELY WANT TO... WAIT!**

## Classroom Session 2

### MILLER WEST TRACK MAP REVIEW (page 9 attached)

#### ***Round Sweeper... Turn 1***

##### **late apex outside - inside - outside**

car position at entry to turn is far right side of track

straight line brake, carried a bit into the corner

GENTLY off the brakes at corner entry, GENTLY on the throttle for balance

RULE OF ONE single wheel input... Good vision = smooth, round arc

Arc brings you inward to the late apex, then ...

Same arc carries you back out toward the right side at corner exit

#### ***Combination Corners Left - right sweepers Turn 1 & 2 & 3 & 4***

##### ***Sweepers are fast, requiring Smooth Inputs balance and little braking***

**TURN 1** Left sweeper ...car position at entry is far right side of straight  
SMOOTH brake, steering and throttle inputs!

Turn 1 exit is far right side of track with throttle ON!

Move car gradually to left side of track before T2

**TURN 2** right sweeper Light brake - lift at entry, back to throttle for balance

Feed on throttle through corner, stay mid track at exit,

move gradually to right for set up to Turn 3,

**Turn 3 left sweeper** ... light brake or lift. Look through apex, add throttle hard

Track out all the way to the right berm, open wheel slightly, don't turn early

Keep some steering input and move left toward T4 inner edge apex

**Turn 4 left gentle sweeper** ... no brake, flat throttle

SMOOTH inputs through 2-3-4 allow suspension to take a set,

Gentle transition to the opposite direction maximizes car balance

#### ***Slow in, Fast out ... Single apex Turn 5***

##### **Tricky, catches you off guard with entry speed, and featureless terrain**

requires LOOKING AHEAD, great anticipation & heavy straightline braking

Featureless terrain, corner comes up deceptively fast!

Look ahead at end of T4 sweeper - look for braking zone, apex and exit

Take off 90% of speed before turn in, LOOK out left window at turn in

add steering input to point car to first berm, geometric apex, hold steering arc

car drifts right after apex onto banking (don't add more steering)

open wheel as soon as possible, add gas firmly to right side track out

immediately start moving left for braking zone of T6

### ***Closing Radius... Turn 6***

#### ***Patience required, very late apex***

car position at entry to turn is far left side of track  
straight line brake, carried a bit into the corner  
patience off the brakes, smoothly transition to balanced throttle  
drive first 50% of corner mid /left track, one smooth arc  
T6 is closing radius and tightens toward end of long turn  
lift off throttle, add steering input toward very late apex  
add throttle hard at apex, and move car quickly toward left berm at exit

### ***Combination Corners Left – left - left Turn 7***

#### **Early turn in for first left, try to create one smooth round turn to apex**

Initial left turn, enter from the far right, early turn in, brush left curbing  
track out to right up the hill, look FAR left to apex  
hold wheel slightly turned, scan through corner, create one smooth arc  
ignore middle berm on left, remain right side of *large radius* turn arc  
banked toward apex, target is third left berm, late berm apex on left side  
exit mid-track only, add throttle, start gentle right sweeper

### ***Combination Corners Right – Right turn 8 & 9***

#### **Early turn in for first right, try to create one smooth round arc**

Turn 8 & 9 are driven as one smooth, arc  
Exit Turn 7 mid track, add throttle, move right toward T8 berm  
Turn 8 is a very fast right hand sweeper, apex past worker station  
Just past T8 apex, move car left in an arc toward end of left berm  
Look left toward end of left berm (turn in point for Turn 9)  
Lift off throttle, slight trail brake at turn in for T9 to point car toward apex  
Add throttle firmly past apex, and move car to left berm at T 9 exit

### ***Opening radius ... Turn 10***

#### **Turn looks like a normal left, with a late apex BUT... It opens to the right after the apex and allows really early throttle application onto the straight**

Position car after exit of T9 to right side of track, heavy braking zone  
Straight line braking, Look through the turn to the left  
Turn in toward apex, mid corner or a smidge past  
get decisive turning done by the apex, quick hands = earlier throttle  
firmly feed on throttle as wheel opens quickly to a wide right track out

***SMILE!***



# MILLER MOTORSPORTS PARK

WEST COURSE - 2.183 Miles

