Editor's Note: Since 1989, Don Alexander has been fortunate to test many cars and trucks at Willow Springs International Raceway in Willow Springs, California. Most of the vehicles were tested on the skid pad and the streets of Willow Springs, and all were using DOT-legal tires.

The "streets" of Willow Springs refers to a 1.3-mile road course with eleven turns. Most of the turns are medium to low speed, with one fast, fourth-gear kink at the end of the straightaway. The streets of Willow Springs put a premium on cornering and are expectedly hard on brakes; but, as always, horsepower does make a difference.

The tests used for this article were conducted over a two and a half-year time span. During that time heat and wind caused numerous changes in both track and skid pad conditions, but the overall times fluctuated no more than half a second on the road course and approximately .02 "G"s lateral acceleration on the skid pad. The overall effect was an excellent range of comparison.

THE NUMBERS

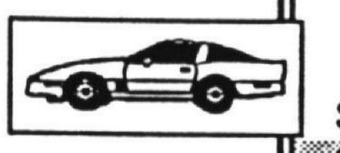
The skid pad lateral acceleration numbers are recorded in "G"s and represent averages of the best left and right turns. Skid pad numbers are the best indication of cornering power and show the relative level of handling. High numbers mean high traction and good control of the tire contact patches. Here, horsepower is not a factor.

Lap times on the streets of Willow Springs indicate the overall performance capability of the vehicle. A combination of cornering power, transient handling response, braking performance and horsepower work together to create the fastest lap times.

STOCK VEHICLES

With the exception of the three fastest cars, all of the stock vehicles tested share common problems from a handling perspective. Traction is limited by OEM tires, and by excessive body roll while cornering. Transitions

PERFORMANCE CAR COMPARISONS



STOCK CARS	Skid Pad (Avg. Lateral "G" Force)	Lap Times (Streets of Willow Springs)
Special Editions Shogun	1.002	1:05.2
Corvette ZR1	.931	1:06.8
Consulier GTP	1.033	1:06.9
Camaro Z-28 1LE Option	.897	1:09.4
Toyota MR2 Turbo	.862	1:09.6
Camaro Z-28 350 (Automatic)	.904	1:10.3
Mustang GT 5.0	.796	1:10.7
Nissan 300ZX	.881	1:10.7
Isuzu Impulse RS (Turbo AWD)	.842	1:11.2
GMC Syclone	.817	1:13.1
GEO Storm GSI	.801	1:13.5
Isuzu Stylus XS	.813	1:13.6
Toyota Corolla GTS (Twin Cam RWD)	.822	1:14.1
Mitsubishi Eclipse (Turbo)	.789	1:14.2
GMC S-15 Pickup (V-6)	.752	1:15.3
Nissan Pickup	.691	1:20.5

MODIFIED STREET	Suspension Modifications	Engine Power	Tires	Skid Pad	Lap Time
Holdener Mustang	ST*	Vortech 400+HP	BFG Comp T/A-R1	.961	1:05.3
Boren Mustang	ST*	Kaufmann 310 HP	BFG Comp T/A-R1	.977	1:06.2
Camaro Z-28 350 Auto	ST*	375 HP	BFG Comp T/A-R1	.993	1:07.9
Ground Zero Mustang	ST*/Eibach	Stock	Pirelli P-Zero	.904	1:08.7
GMC Syclone	ST*	Turbo City	BFG Comp T/A-R1	.952	1:08.9
Mitsubishi Eclipse GSI	ST*	Stock	Yokohama A008R-TU	.931	1:09.9
GMC S-15 V-6	ST*	Stock	Yokohama A008R-TU	.936	1:11.2
Toyota Corolla GTS Rear Drive	TRD**	Stock	Yokohama A008R-TU	1.031	1:11.2
Geo Storm GSI	ST*	Stock	Bridgestone RE-71	.912	1:11.5
Toyota Pickup	ST*	Stock	BFG Comp T/A-R1	.902	1:14.9
Nissan Pickup	ST*	Stock	BFG Comp T/A-R1	.881	1:15.6
Mazda Pickup	ST*	Stock	BFG Comp T/A-R1	.883	1:17.7

RACE CARS	Tires	Skid Pad	Lap Time
Skipp Pipes Racing Shelby CSX IMSA Intl. Sedan Series	BFG Comp T/A-R1	1.073	1:03.2
Skipp Pipes Racing Shelby CSX IMSA Intl. Sedan Series	General XP 2000	1.065	1:03.5
Richard Jonec Racing Camaro Z-28 SCCA Escort Endurance Series	Yokohama A008R-TU	.981	1:05.9
Craig Stanton Horizon Racing Camaro Z-28 SCCA SSGT Showroom Stock	BFG Comp T/A-R1	.936	1:08.6
Willow Springs Intl. Racing School Toyota Celica FWD	Toyo F-1	.946	1:09.6
Willow Springs Intl. Racing School Toyota Celica RWD	Toyo F-1	.952	1:11.2

*ST – Suspension Techniques
**TRD – Toyota Racing Development

often are sloppy due to compliance in the tires and suspension systems. Many of the modified street vehicles are the same as the stock vehicle, with tire, wheel and suspension modifications. Tires will allow the biggest handling improvement, but antiroll bars, springs and shocks are important because they allow the tire contact patch to stay on the ground and work harder. On the horsepower side there is no such thing as too much power.

The three fastest stock vehicles are all in the $50,000 plus price range, all have high power-to-weight ratios and lots of cornering traction. The prices drop by at least 50 percent to the next level, but performance is still impressive. It is with these cars and trucks that tires, wheels, suspension improvements and a little extra power can make a big difference in skid pad numbers and lap times.

Of this group, the real sleeper is the Isuzu Impulse RS All Wheel Drive Turbo. This is the only all wheel drive car tested. With sticky tires and suspension upgrades, this car would run 1.0 "G" skid pad numbers and lap times in the 1:07 range.

MODIFIED STREET VEHICLES

All of these vehicles have upgraded wheel/tire packages and suspension systems. Some have engine modifications as well. All are very comfortable to drive on the street. Suspension components in all cases are less than $1,000. Engine modifications range in cost and also have a big affect on lap times around the streets of Willow Springs.

•Holdener Mustang — This is the car that averaged 167mph at the Silver State Classic. Don could smoke the rear tires everywhere except the 3rd and 4th gear sections of the main straightaway. The car has very hard brake pads for running 175mph; with softer pads the lap times would be two seconds faster. This car should probably be under the race car category, but the owner does drive it daily.

•Boren Mustang — Richard Boren is an avid autocrosser and this car is superb. Moderate engine modifications and stock brakes; but great engine handling, make this a very fast daily driver.

•Camaro Z-28 Automatic — Good power and excellent handling make this a rocket in the corners. A five speed would be worth 1.5 to 2 seconds a lap.

•Ground Zero Mustang — More negative front camber and softer compound tires would make this ride faster. Good balance and cockpit adjustable Tokico Illumina shocks make it comfortable on the street.

•GMC Syclone — The BFG COMP T/A and the Suspension Techniques packages are awesome. Turbo City added some ponies. Don had one lap in this vehicle; tuning and seat time would make it even quicker. This was easily the most dramatic improvement over stock.

•Mitsubishi Eclipse — Another big improvement. Reducing body roll really helped the Eclipse.

•GMC S-15 V-6 —ZR-1 cornering force from a pickup is incredible. Lap times would improve with a five-speed transmission. Wheel spin was a problem in tight turns. Great fun on the road or the track.

•Toyota Corolla GTS —This was taken to the limit for street suspension, but still very driveable on the highway. No power, but great around corners.

•GEO Storm GSI — Great balance, great drive and a big improvement over stock. The Bridgestone RE-71 tires worked great and a race compound would have raised the skid pad numbers to .93, at least.

PICKUPS

The three pickups were very close in handling since all were identically equipped. Lap times are proportional to stock horsepower. In all cases, the wheels, tires, and suspension modifications were not very expensive, and all the trucks cornered better than a stock Miata. Pickups certainly can be the modern sports car.

RACE CARS

All of the following are used