**SUSPENSION GEOMETRY**
NEWLY REVISED

by Ted Mitchell

*Last Updated: 12/19/2011 14:34:49*

Here are some suspension geometry figures I have developed for the STOCK (original springs, shocks, tires, wheels, etc.)  Pantera.  Any comments and or suggestions are welcome.

**STOCK PANTERA**

NOTES:
1.  Without 1973+ steering rack spacer
2.  Ride height per TSB (7.28in. front, 6.89in. rear)
3.  Stock shock absorbers with rubber snubbers.  These snubbers only allow about 3/8 inch bump travel before engagement which raises spring rate considerably, but my suspension program doesn't let me consider the additional progressive spring rate which would limit roll even more.
4.  All linear measurements in inches (including grid on diagrams).
5.  \*The vertical CG height of 17 inches was a GUESS on my part because I have been unable to find any reliable figure.

**General**

Wheelbase (left/right) 99.239 99.239

Sprung mass - front (total) 1105.400

 - rear (total) 1561.600

Unsprung mass - front (total) 189.000

 - rear (total) 226.000

Vehicle mass 3082.000

Mass distribution - front:rear 42.00 % 58.00 %

Wheel and tyre - front 185/70 VR 15

Wheel - diameter 15.000

 - width 7.000

 - offset -0.250

Tyre - diameter 23.930

 - section width 7.280

 - tread width 7.000

Wheel and tyre - rear 215/70 VR 15

Wheel - diameter 15.000

 - width 8.000

 - offset -0.750

Tyre - diameter 24.724

 - section width 8.464

 - tread width 8.000

 - tread width 8.000



**Front suspension**

Wishbone

Rear wheel drive

Outboard front brakes, outboard rear brakes

Chassis lateral datum (X): Chassis centreline

Chassis vertical datum (Y): Front axle line

Chassis longitudinal datum (Z): Front axle line

 LH RH

Chassis pivot points - top - from car cl X 13.976 13.976 -13.976 -13.976

(actual front/rear) - from ground Y 16.993 17.022 16.993 17.022

 - from datum Z -5.873 2.689 -5.873 2.689

 - bottom - from car cl X 11.122 11.122 -11.122 -11.122

 - from ground Y 7.280 7.332 7.280 7.332

 - from datum Z -14.107 1.147 -14.107 1.147

Chassis pivot points - top - from car cl X 13.976 13.976 -13.976 -13.976

(virtual/normal) - from ground Y 17.013 17.014 17.013 17.014

 - from datum Z 0.000 0.321 0.000 0.321

 - bottom - from car cl X 11.122 11.122 -11.122 -11.122

 - from ground Y 7.328 7.327 7.328 7.327

 - from datum Z 0.000 -0.218 0.000 -0.218

Upright pivot points - top - from car cl X 22.743 -22.743

(from car datum) - from ground Y 17.708 17.708

 - from datum Z 0.319 0.319

 - bottom - from car cl X 24.121 -24.121

 - from ground Y 6.783 6.783

 - from datum Z -0.216 -0.216

Front view IC length (swing axle) 95.547 95.547

Front view IC height (swing axle) 10.600 10.600

Roll centre height 3.162

Roll centre offset 0.000

Side view IC length -2.800E+16 -2.798E+16

Side view IC height -9.540E+13 -9.530E+13

Side view IC height (at rear axle centreline) 0.338 0.338

Side view IC angle (from tyre centre) 0.195 0.195

Brake force % 60.0 %

Brake anti-dive % 1.2 % 1.2 %

Track (actual, with specified settings) 57.000

Top link length (virtual/normal) 8.801 8.795 8.801 8.795

 (front/rear) 10.757 9.108 10.757 9.108

Bottom link length (virtual/normal) 13.012 13.011 13.012 13.011

 (front/rear) 19.031 13.082 19.031 13.082

Tyre contact cl from Z datum 0.000 0.000

Tyre contact cl from vehicle cl 28.500 -28.500

Tyre rolling radius 11.965 11.965

Wheel offset -0.250 -0.250

Wheel toe reference length 25.197 25.197

Camber angle 0.000 0.000

Upright pivot inclination and offset 7.210 3.519 7.210 3.519

Caster angle and trail 2.750 0.575 2.750 0.575

Static toe (degree and in) LH toein RH toein 0.430 0.189 0.430 0.189

Chassis roll values calculated every 1.00 degrees. Right hand turn.

Semi dynamic roll centre

Outer wheel (LH) roll centre

 camber caster scrub tramp toein offset height fvsax

 static 0.00 2.75 0.000 0.000 0.189 0.000 3.162 95.547

 1.00 roll 0.69 2.76 -0.003 0.007 0.151 -2.215 3.151 84.495

 2.00 roll 1.33 2.77 -0.009 0.011 0.123 -4.381 3.120 75.605

 3.00 roll 1.94 2.77 -0.019 0.014 0.104 -6.451 3.072 68.241

 2.00 roll+ 0.94 2.77 0.040 0.013 0.103 -5.271 2.376 68.300

 0.500 bump

Inner wheel (RH) roll centre

 camber caster scrub tramp toein offset height fvsax

 static 0.00 2.75 0.000 0.000 0.189 0.000 3.162 95.547

 1.00 roll -0.73 2.73 -0.001 -0.009 0.237 -2.215 3.151 109.830

 2.00 roll -1.49 2.71 -0.007 -0.022 0.295 -4.381 3.120 129.250

 3.00 roll -2.30 2.68 -0.018 -0.037 0.364 -6.451 3.072 157.680

 2.00 roll+ -1.73 2.73 0.041 -0.011 0.237 -5.271 2.376 109.960

 0.500 bump

LH wheel roll centre height

 camber caster scrub tramp toein chassis ground fvsax

 2.000 bump -1.51 2.78 0.118 0.012 0.093 2.328 0.328 62.121

 1.500 bump -1.07 2.78 0.107 0.011 0.103 2.505 1.005 68.391

 1.000 bump -0.67 2.77 0.084 0.009 0.123 2.704 1.704 75.749

 0.500 bump -0.32 2.76 0.048 0.006 0.151 2.923 2.423 84.592

 static 0.00 2.75 0.000 0.000 0.189 3.162 3.162 95.547

 1.000 droop 0.51 2.72 -0.136 -0.017 0.296 3.694 4.694 128.940

 2.000 droop 0.86 2.69 -0.327 -0.042 0.448 4.299 6.299 204.210

 3.000 droop 1.03 2.64 -0.578 -0.078 0.656 4.979 7.979 613.430

 4.000 droop 0.98 2.57 -0.893 -0.128 0.936 5.735 9.735 -398.520

RH wheel roll centre height

 camber caster scrub tramp toein chassis ground fvsax

 2.000 bump -1.51 2.78 0.118 0.012 0.093 2.328 0.328 62.121

 1.500 bump -1.07 2.78 0.107 0.011 0.103 2.505 1.005 68.391

 1.000 bump -0.67 2.77 0.084 0.009 0.123 2.704 1.704 75.749

 0.500 bump -0.32 2.76 0.048 0.006 0.151 2.923 2.423 84.592

 static 0.00 2.75 0.000 0.000 0.189 3.162 3.162 95.547

 1.000 droop 0.51 2.72 -0.136 -0.017 0.296 3.694 4.694 128.940

 2.000 droop 0.86 2.69 -0.327 -0.042 0.448 4.299 6.299 204.210

 3.000 droop 1.03 2.64 -0.578 -0.078 0.656 4.979 7.979 613.430

 4.000 droop 0.98 2.57 -0.893 -0.128 0.936 5.735 9.735 -398.520

Equivalent suspension travel due to chassis roll

 inner (RH) outer (LH)

 1.00 roll 0.497 -0.498

 2.00 roll 0.993 -0.997

 3.00 roll 1.487 -1.496

 2.00 roll+ 1.493 -0.496

 0.500 bump

Side view swing axle and instant centre LH

 IC IC axle

 length height height angle

 2.000 bump -3.532E+16-1.203E+14 0.338 0.20

 1.500 bump -3.303E+16-1.125E+14 0.338 0.20

 1.000 bump -2.242E+16-7.636E+13 0.338 0.20

 0.500 bump -3.131E+16-1.067E+14 0.338 0.20

 static -2.800E+16-9.540E+13 0.338 0.20

 1.000 droop -5.000E+16-1.703E+14 0.338 0.20

 2.000 droop -3.046E+16-1.038E+14 0.338 0.20

 3.000 droop -2.728E+16-9.293E+13 0.338 0.20

 4.000 droop -4.691E+16-1.598E+14 0.338 0.20

Side view swing axle and instant centre RH

 IC IC axle

 length height height angle

 2.000 bump -3.541E+16-1.206E+14 0.338 0.20

 1.500 bump -3.303E+16-1.125E+14 0.338 0.20

 1.000 bump -2.242E+16-7.636E+13 0.338 0.20

 0.500 bump -3.124E+16-1.064E+14 0.338 0.20

 static -2.798E+16-9.530E+13 0.338 0.20

 1.000 droop -6.420E+16-2.187E+14 0.338 0.20

 2.000 droop -6.204E+16-2.113E+14 0.338 0.20

 3.000 droop -2.918E+16-9.940E+13 0.338 0.20

 4.000 droop -4.700E+16-1.601E+14 0.338 0.20

 LH RH

 brake drive brake drive

 a-dive% a-lift% a-dive% a-lift%

 2.000 bump 1.2 0.0 1.2 0.0

 1.500 bump 1.2 0.0 1.2 0.0

 1.000 bump 1.2 0.0 1.2 0.0

 0.500 bump 1.2 0.0 1.2 0.0

 static 1.2 0.0 1.2 0.0

 1.000 droop 1.2 0.0 1.2 0.0

 2.000 droop 1.2 0.0 1.2 0.0

 3.000 droop 1.2 0.0 1.2 0.0

 4.000 droop 1.2 0.0 1.2 0.0

Ride height reference point: Bottom wishbone, front mounting

(from vehicle datum) - from car cl X 11.122

Static ride height - from ground Y 7.280

 - from Z datum Z -14.157

Datum reference dimensions

Chassis lateral datum (X): Chassis centreline

Chassis vertical datum (Y): Front axle line

Chassis longitudinal datum (Z): Front axle line

Ride height reference point: Bottom wishbone, front mounting

(from chassis datum) - from car cl X 11.122

 - from Y datum Y -4.685

 - from Z datum Z -14.173

 LH

Chassis pivot points - top - from car cl X 13.976 13.976

(front/rear) - from Y datum Y 5.000 5.000

 - from Z datum Z -5.856 2.706

 - bottom - from car cl X 11.122 11.122

 - from Y datum Y -4.685 -4.685

 - from Z datum Z -14.123 1.131

Upright pivot points - top - from wheel flange X 6.009

(on upright) - from hub cl Y 5.750

 - from axle cl Z 0.000

 - bottom - from wheel flange X 4.627

 - from hub cl Y -5.188

 - from axle cl Z 0.000

Anti-roll bar actuation type is chassis mount, actuated from bottom link.

Shape is bent bar.

Anti-roll bar - active length 25.000

 - outside diameter 0.872

 - spring rate (nominal) 398.550 lb/in

LH and RH side identical.

 Wheel rate Motion Length

 lb/in ratio

Shock/Spring

 2.018 bump 110.81 1.456 12.312

 2.000 bump 110.76 1.457 12.325

 1.500 bump 109.41 1.466 12.667

 1.000 bump 108.28 1.473 13.007

 0.500 bump 107.06 1.482 13.346

 static 106.49 1.486 13.683

 1.000 droop 105.10 1.495 14.354

 2.000 droop 104.52 1.499 15.021

 3.000 droop 104.28 1.501 15.686

 4.000 droop 105.80 1.490 16.354

 4.031 droop 105.88 1.490 16.375

LH side:

 Wheel rate Motion Length

 lb/in ratio

Shock/Spring

 0.00 roll 106.49 1.486 13.683

 1.00 roll 107.74 1.477 13.347

 2.00 roll 108.91 1.469 13.010

 3.00 roll 110.08 1.461 12.670

 2.00 roll+ 109.79 1.463 12.669

 0.500 bump

Antirollbar

 0.00 roll 93.52 2.064

 1.00 roll 91.29 2.089

 2.00 roll 89.37 2.112

 3.00 roll 87.75 2.131

 2.00 roll+ 86.82 2.143

 0.500 bump

RH side:

 Wheel rate Motion Length

 lb/in ratio

Shock/Spring

 0.00 roll 106.49 1.486 13.683

 1.00 roll 105.20 1.495 14.017

 2.00 roll 103.91 1.504 14.349

 3.00 roll 102.60 1.513 14.678

 2.00 roll+ 104.82 1.497 14.015

 0.500 bump

Antirollbar

 0.00 roll 93.52 2.064

 1.00 roll 96.11 2.036

 2.00 roll 99.10 2.005

 3.00 roll 102.54 1.971

 2.00 roll+ 95.47 2.043

 0.500 bump

 Wheel rate Motion Length

 lb/in ratio

Shock/Spring

 0.00 roll 106.49 1.486 13.683

 1.00 roll 107.74 1.477 13.347

 2.00 roll 108.91 1.469 13.010

 3.00 roll 110.08 1.461 12.670

 2.00 roll+ 109.79 1.463 12.669

 0.500 bump

Antirollbar

 0.00 roll 93.52 2.064

 1.00 roll 91.29 2.089

 2.00 roll 89.37 2.112

 3.00 roll 87.75 2.131

 2.00 roll+ 86.82 2.143

 0.500 bump

Shockabsorber - chassis mtg - from car cl X 15.748

 - from ground Y 19.375

 - from datum Z -0.025

 - length - min (bump) 12.312

 - static 13.683

 - max (droop) 16.375

 - stroke 4.063

 - motion ratio (static) 1.486

 - wishbone mtg - from link pivot 10.250

 - above link cl 0.000

 - from link cl 0.000

 - from car cl X 21.363

 - from ground Y 6.899

 - from datum Z -0.216

Corner weight (unsprung) 94.500 lb

Corner weight (sprung) 552.720 lb

Corner weight (total) 647.220 lb

Suspension frequency 82.36 cpm

Spring parameters - spring rate 235.000

 - static load 821.090

 - static length 8.058

 - free length 11.552

 - compressed length 6.687

 - preload 0.802

 - coil ID 3.375

 - wire dia 0.514

 - number of coils 6.943

Anti-roll bar actuation type is chassis mount, actuated from bottom link.

Shape is bent bar.

Anti-roll bar - active length 25.000

 - outside diameter 0.872

 - spring rate (nominal) 398.550 lb/in

Chassis reference dimensions LH

Shock 1 chassis mounting - from car cl X 15.748

 - from Y datum Y 7.362

 - from Z datum Z 0.000

Antirollbar chassis mounting - from car cl X 10.315

 - from Y datum Y -2.943

 - from Z datum Z -10.682

Front steer, fixed rack & upright pivots

Vehicle lateral datum (X): Vehicle centreline

Vehicle vertical datum (Y): Ground

Vehicle longitudinal datum (Z): Front axle line

 LH

Rack pivot point - from car cl X 14.094

 - from ground Y 11.802

 - from datum Z -4.133

Steering arm pivot - from car cl X 24.058

(from car datum) - from ground Y 11.756

 - from datum Z -4.794

Toe link length (actual) 9.986

Ackermann point - behind front axle cl 213.040

 - behind rear axle cl 113.810 114.680 % of wheelbase

Wheel toe reference length 25.197

Bump steer absolute relative

 degree in degree in

 2.018 bump 0.21 0.093 toe in 0.22 0.097 toe out

 2.000 bump 0.21 0.093 toe in 0.22 0.096 toe out

 1.500 bump 0.24 0.103 toe in 0.20 0.086 toe out

 1.000 bump 0.28 0.123 toe in 0.15 0.067 toe out

 0.500 bump 0.34 0.151 toe in 0.09 0.038 toe out

 static 0.43 0.189 toe in 0.00 0.000

 1.000 droop 0.67 0.296 toe in 0.24 0.107 toe in

 2.000 droop 1.02 0.448 toe in 0.59 0.259 toe in

 3.000 droop 1.49 0.656 toe in 1.06 0.467 toe in

 4.000 droop 2.13 0.936 toe in 1.70 0.747 toe in

 4.031 droop 2.15 0.946 toe in 1.72 0.757 toe in

Right hand turn. LH wheel is outer, RH wheel is inner.

 Toe out in turns Rack Camber (actual) Camber (change)

 Outer Inner travel Outer Inner Outer Inner

 0.00 -0.43 0.04 0.00 -0.02 0.00 -0.02

 5.00 4.63 -0.38 -0.21 0.25 -0.21 0.25

 10.00 9.84 -0.80 -0.37 0.58 -0.37 0.58

 15.00 15.19 -1.22 -0.46 0.97 -0.46 0.97

 20.00 20.67 -1.63 -0.50 1.44 -0.50 1.44

 25.00 26.28 -2.04 -0.48 1.97 -0.48 1.97

 30.00 31.97 -2.44 -0.40 2.55 -0.40 2.55

Datum reference dimensions

Chassis lateral datum (X): Chassis centreline

Chassis vertical datum (Y): Front axle line

Chassis longitudinal datum (Z): Front axle line

 LH

Rack pivot point - from chassis cl X 14.094

 - from Y datum Y -0.197

 - from Z datum Z -4.134

Steering arm pivot - from wheel mtg X 4.656

(on upright) - from hub cl Y -0.440

 - upright cl Z -4.812



**Rear suspension**

Wishbone

Rear wheel drive

Outboard front brakes, outboard rear brakes

Chassis lateral datum (X): Chassis centreline

Chassis vertical datum (Y): Front axle line

Chassis longitudinal datum (Z): Front axle line

 LH

Chassis pivot points - top - from car cl X 13.504 13.504

(actual front/rear) - from ground Y 17.161 17.194

 - from datum Z 89.403 98.999

 - bottom - from car cl X 9.250 9.250

 - from ground Y 6.837 6.890

 - from datum Z 86.682 102.330

Chassis pivot points - top - from car cl X 13.504 13.504

(virtual/normal) - from ground Y 17.194 17.194

 - from datum Z 99.239 99.258

 - bottom - from car cl X 9.250 9.250

 - from ground Y 6.879 6.879

 - from datum Z 99.239 99.250

Upright pivot points - top - from car cl X 21.829

(from car datum) - from ground Y 17.902

 - from datum Z 99.255

 - bottom - from car cl X 22.572

 - from ground Y 5.773

 - from datum Z 99.253

Front view IC length (swing axle) 78.727

Front view IC height (swing axle) 11.796

Roll centre height 4.308

Roll centre offset 0.000

Side view IC length -3.242E+16

Side view IC height 1.104E+14

Side view IC height (at front axle centreline) -0.338

Side view IC angle (from tyre centre) -0.195

Brake force % 40.0 %

Brake anti-lift % -0.8 %

Drive anti-squat % -2.0%

Track (actual, with specified settings) 57.500

Top link length (virtual/normal) 8.355 8.355

 (front/rear) 12.920 8.359

Bottom link length (virtual/normal) 13.368 13.368

 (front/rear) 18.348 13.719

Tyre contact cl from Z datum 99.239

Tyre contact cl from vehicle cl 28.750

Tyre rolling radius 12.362

Wheel offset -0.750

Wheel toe reference length 26.850

Camber angle -0.500

Upright inclination angle 0.000

Static toe (degree and in) toein 0.134 0.063

Chassis roll values calculated every 1.00 degrees. Right hand turn.

Semi dynamic roll centre

Outer wheel (LH) roll centre

 camber caster scrub tramp toein offset height fvsax

 static -0.50 0.00 0.000 0.000 0.063 0.000 4.308 78.727

 1.00 roll 0.11 0.00 -0.002 -0.001 0.063 -1.466 4.308 70.832

 2.00 roll 0.69 0.00 -0.007 -0.003 0.063 -2.903 4.310 64.286

 3.00 roll 1.22 0.00 -0.015 -0.004 0.063 -4.286 4.315 58.731

 2.00 roll+ 1.50 0.00 -0.185 0.001 0.063 -2.637 5.795 78.261

 1.000 droop

Inner wheel (RH) roll centre

 camber caster scrub tramp toein offset height fvsax

 static -0.50 0.00 0.000 0.000 0.063 0.000 4.308 78.727

 1.00 roll -1.16 0.00 -0.002 0.001 0.063 -1.466 4.308 88.528

 2.00 roll -1.85 0.00 -0.008 0.002 0.063 -2.903 4.310 101.170

 3.00 roll -2.59 -0.01 -0.019 0.004 0.063 -4.286 4.315 118.340

 2.00 roll+ -1.37 0.00 -0.186 0.006 0.063 -2.637 5.795 142.410

 1.000 droop

LH wheel roll centre height

 camber caster scrub tramp toein chassis ground fvsax

 2.000 bump -2.28 0.00 0.203 -0.007 0.063 3.629 1.629 54.401

 1.500 bump -1.77 0.00 0.170 -0.005 0.063 3.761 2.261 59.152

 1.000 bump -1.31 0.00 0.125 -0.003 0.063 3.918 2.918 64.620

 0.500 bump -0.88 0.00 0.069 -0.002 0.063 4.101 3.601 71.030

 static -0.50 0.00 0.000 0.000 0.063 4.308 4.308 78.727

 1.000 droop 0.15 0.00 -0.176 0.003 0.063 4.797 5.797 100.510

 2.000 droop 0.64 0.00 -0.407 0.007 0.063 5.393 7.393 141.620

 2.871 droop 0.92 0.00 -0.658 0.010 0.063 6.011 8.882 235.230

 2.871 droop 0.92 0.00 -0.658 0.010 0.063 6.011 8.882 235.230

Equivalent suspension travel due to chassis roll

 inner (RH) outer (LH)

 1.00 roll 0.501 -0.502

 2.00 roll 1.001 -1.006

 3.00 roll 1.499 -1.511

 2.00 roll+ 0.000 -2.006

 1.000 droop

Side view swing axle and instant centre

 IC IC axle

 length height height angle

 2.000 bump -5.293E+16 1.803E+14 -0.338 -0.20

 1.500 bump -3.314E+16 1.129E+14 -0.338 -0.20

 1.000 bump -3.496E+16 1.191E+14 -0.338 -0.20

 0.500 bump -3.910E+16 1.332E+14 -0.338 -0.20

 static -3.242E+16 1.104E+14 -0.338 -0.20

 1.000 droop -5.221E+16 1.779E+14 -0.338 -0.20

 2.000 droop -5.101E+16 1.738E+14 -0.338 -0.20

 2.871 droop -2.954E+16 1.006E+14 -0.338 -0.20

 2.871 droop -2.954E+16 1.006E+14 -0.338 -0.20

 LH

 brake drive

 a-lift% a-squat%

 2.000 bump -0.8 -2.0

 1.500 bump -0.8 -2.0

 1.000 bump -0.8 -2.0

 0.500 bump -0.8 -2.0

 static -0.8 -2.0

 1.000 droop -0.8 -2.0

 2.000 droop -0.8 -2.0

 2.871 droop -0.8 -2.0

 2.871 droop -0.8 -2.0

Ride height reference point: Bottom wishbone, rear mounting

(from vehicle datum) - from car cl X 9.338

Static ride height - from ground Y 6.890

 - from Z datum Z 102.380

Datum reference dimensions

Chassis lateral datum (X): Chassis centreline

Chassis vertical datum (Y): Front axle line

Chassis longitudinal datum (Z): Front axle line

Ride height reference point: Bottom wishbone, rear mounting

(from chassis datum) - from car cl X 9.338

 - from Y datum Y -5.472

 - from Z datum Z 102.360

 LH

Chassis pivot points - top - from car cl X 13.504 13.504

(front/rear) - from Y datum Y 4.843 4.843

 - from Z datum Z 89.420 99.016

 - bottom - from car cl X 9.250 9.250

 - from Y datum Y -5.472 -5.472

 - from Z datum Z 86.664 102.310

Upright pivot points - top - from wheel flange X 7.515

(on upright) - from hub cl Y 5.600

 - from axle cl Z 0.000

 - bottom - from wheel flange X 6.877

 - from hub cl Y -6.535

 - from axle cl Z 0.000

Anti-roll bar actuation type is chassis mount, actuated from bottom link.

Shape is bent bar.

Anti-roll bar - active length 21.000

 - outside diameter 0.785

 - spring rate (nominal) 150.540 lb/in

LH and RH side identical.

 Wheel rate Motion Length

 lb/in ratio

Shock/Spring

 2.985 bump 163.23 1.475 12.312

 2.000 bump 165.12 1.466 12.983

 1.500 bump 166.80 1.459 13.325

 1.000 bump 168.18 1.453 13.668

 0.500 bump 170.04 1.445 14.013

 static 170.52 1.443 14.359

 1.000 droop 173.25 1.431 15.055

 2.000 droop 176.75 1.417 15.757

 2.871 droop 181.03 1.400 16.375

LH side:

 Wheel rate Motion Length

 lb/in ratio

Shock/Spring

 0.00 roll 170.52 1.443 14.359

 1.00 roll 170.08 1.445 14.012

 2.00 roll 169.49 1.447 13.664

 3.00 roll 168.69 1.451 13.318

 2.00 roll+ 172.98 1.433 14.359

 1.000 droop

Antirollbar

 0.00 roll 64.86 1.524

 1.00 roll 63.65 1.538

 2.00 roll 62.65 1.550

 3.00 roll 61.80 1.561

 2.00 roll+ 66.35 1.506

 1.000 droop

RH side:

 Wheel rate Motion Length

 lb/in ratio

Shock/Spring

 0.00 roll 170.52 1.443 14.359

 1.00 roll 170.49 1.443 14.707

 2.00 roll 170.85 1.441 15.055

 3.00 roll 171.09 1.440 15.403

 2.00 roll+ 173.69 1.430 15.752

 1.000 droop

Antirollbar

 0.00 roll 64.86 1.524

 1.00 roll 66.29 1.507

 2.00 roll 67.99 1.488

 3.00 roll 70.01 1.466

 2.00 roll+ 73.52 1.431

 1.000 droop

 Wheel rate Motion Length

 lb/in ratio

Shock/Spring

 0.00 roll 170.52 1.443 14.359

 1.00 roll 170.08 1.445 14.012

 2.00 roll 169.49 1.447 13.664

 3.00 roll 168.69 1.451 13.318

 2.00 roll+ 172.98 1.433 14.359

 1.000 droop

Antirollbar

 0.00 roll 64.86 1.524

 1.00 roll 63.65 1.538

 2.00 roll 62.65 1.550

 3.00 roll 61.80 1.561

 2.00 roll+ 66.35 1.506

 1.000 droop

Shockabsorber - chassis mtg - from car cl X 13.976

 - from ground Y 20.917

 - from datum Z 94.064

 - length - min (bump) 12.312

 - static 14.359

 - max (droop) 16.375

 - stroke 4.063

 - motion ratio (static) 1.443

 - wishbone mtg - from link pivot 10.438

 - above link cl 1.800

 - from link cl -5.161

 - from car cl X 19.801

 - from ground Y 7.792

 - from datum Z 94.086

Corner weight (unsprung) 113.000 lb

Corner weight (sprung) 780.780 lb

Corner weight (total) 893.780 lb

Suspension frequency 87.69 cpm

Spring parameters - spring rate 355.000

 - static load 1126.600

 - static length 8.547

 - free length 11.720

 - compressed length 6.500

 - preload 1.158

 - coil ID 3.187

 - wire dia 0.594

 - number of coils 8.921

Anti-roll bar actuation type is chassis mount, actuated from bottom link.

Shape is bent bar.

Anti-roll bar - active length 21.000

 - outside diameter 0.785

 - spring rate (nominal) 150.540 lb/in

Chassis reference dimensions LH

Shock 1 chassis mounting - from car cl X 13.976

 - from Y datum Y 8.583

 - from Z datum Z 94.094

Antirollbar chassis mounting - from car cl X 6.654

 - from Y datum Y -4.708

 - from Z datum Z 110.110

Fixed inner uj pivot, variable length driveshaft

Vehicle lateral datum (X): Vehicle centreline

Vehicle vertical datum (Y): Ground

Vehicle longitudinal datum (Z): Front axle line

 LH

Inner uj pivot point - from car cl X 7.500

 - from ground Y 11.894

 - from datum Z 99.363

Outer uj pivot point - from car cl X 20.517

(from car datum) - from ground Y 12.291

 - from datum Z 99.258

Driveshaft length (static) 13.024

Length between uj pivot cls (static) 13.024

 Drive shaft UJ Angle

 length plunge inner outer

 2.985 bump 12.985 0.080 13.14 9.74

 2.000 bump 13.021 0.044 9.45 7.18

 1.500 bump 13.030 0.035 7.56 5.80

 1.000 bump 13.034 0.031 5.65 4.35

 0.500 bump 13.032 0.033 3.73 2.86

 static 13.024 0.000 1.81 1.33

 1.000 droop 12.992 0.032 2.30 2.15

 2.000 droop 12.937 0.087 6.42 5.78

 2.871 droop 12.869 0.155 10.18 9.26

Datum reference dimensions

Chassis lateral datum (X): Chassis centreline

Chassis vertical datum (Y): Front axle line

Chassis longitudinal datum (Z): Front axle line

 LH

Inner UJ - from chassis cl X 7.500

 - from Y datum Y -0.458

 - from Z datum Z 99.362

Outer UJ - from wheel mtg X 8.875

\***DISCLAIMER:**

This information is presented as a Public Service. References may contain obsolete and/or inaccurate data and no warrantee is made as to accuracy or applicability. It is not intended to replace factory or other recommended service procedure, but is provided for information only. Ted Mitchell, T. Mitchell Enterprises, or the Pantera Owners Club of America will not be held liable for the interpretation or implementation of same, and suggests you consult your parts and/or service specialist for applications to your specific vehicle.