Van Diemen Race Cars

Formula Zetec/Formula Continental

Users Manual

By Dominic Cape

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GROUP FOUR LLC
VAN DIEMEN RACE CARS

For any questions, advise or ideas you might have please do not hesitate to call us at the following numbers:

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CAR SALES:	Jon Baytos, Brad Baytos
PARTS:	Brad Baytos
TECHNICAL ASSISTANCE:	Dominic Cape, Nicholas Cape

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GROUP FOUR IMPORTER (Car Sales, Parts and Service)
Jon Baytos, Brad Baytos 727-522-7544, 727-526-4724

COMPRENT MOTORSPORTS: Southeast Dealer
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GTP MOTORSPORTS: Northeast Dealer
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PR1 MOTORSPORTS: Pacific Dealer
Bobby Oergel 559-277-1300

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GENERAL DIMENSIONS

WHEELBASE	101.5"
FRONT TRACK	61"
REAR TRACK	56 1/4"
OVERALL HEIGHT	38"
OVERALL WIDTH	71"
OVRERALL LENGTH	165"
FRONT SUSPENSION	PUSH ROD TWIN DAMPER
REAR SUSPENSION	PUSH ROD TWIN DAMPER
CHASSIS	CHROME MOLY
BODYWORK	GEL COAT FIBREGLASS
CASTINGS	VAN DIEMEN
GEARBOX	HEWLAND LD200
GEARS	HEWLAND
SPRINGS	EIBACH 2" ID, 5" LONG
DAMPERS	DYNAMIC (TRIPLE ADJUSTABLE)
FUEL CELL	ATL
FIRE SYSTEM	LIFELINE
STEERING WHEEL	MOMO 270 MM OD
STEERING RELEASE	SPA DESIGN
BRAKE SYSTEM	GIRLING
BATTERY	VARLEY (RED TOP)
SEATBELT	WILLANS

SET UP

FRONT TIRE	AVON FC	AVON Z	GOODYEAR	HOOSIER
COLD TIRE PRES. (LB)	16	18	14	14

REAR TIRE	AVON FC	AVON Z	GOODYEAR	HOOSIER
COLD TIRE PRES. (LB)	16	18	15	16

SUGGESTED SET UP:

The set-ups consider the complete car with driver seated, and 3 gallons of fuel ready to race, zero pre-load on front and rear anti roll bars.

FRONT	AVON FC	AVON Z	GOODYEAR	HOOSIER
RIDE HEIGHT (MM)	32	36	32	32
CAMBER (DEGREE)	2	3.5	1.75	1.5
TOE (MM) (TOTAL 2 WHEELS)	2 OUT	2 OUT	2 OUT	2 OUT
SPRING (LB/IN)	400	400	400	400
SPRING PRE-LOAD (MM)	7	16	7	7
ANTI ROLL BAR SIZE (INCH)	5/8	5/8	5/8	5/8
ANTI ROLL BAR SETTING (%)	50%	50%	50%	50%

REAR	AVON FC	AVON Z	GOODYEAR	HOOSIER
RIDE HEIGHT (MM)	40	44	40	40
CAMBER (DEGREE)	1.5	2.5	1.25	1
TOE (MM) (TOTAL 2 WHEELS)	3 IN	3 IN	3 IN	3 IN
SPRING (LB/IN)	800	900	800	800
SPRING PRE-LOAD (MM)	2	2	2	2
ANTI ROLL BAR SIZE (INCH)	1/2	1/2	1/2	1/2
ANTI ROLL BAR SETTING (MM)	5	0	5	5

ZETEC SET UP ADJUSTMENT

POSITIVE CHANGE IN:	MEANS:
Height	Car Rises
Toe	Toe-Out
Camber	Upper Part of Rim Outward
Castor	Lower Part of Rim Points Ahead

ADJUSTMENTS

		FRONT	REAR
PUSHROD ADJUSTER:			
+ 1 Turn	Height Change (mm)	5	5
	Camber Change (deg	0.1	0.1
TOE ADJUSTER:			
+1 Turn	Toe Change (mm)	5	5
CAMBER SPACER:			
+1 mm	Shim Change (deg)	0.2	0.2
CASTOR ADJUSTER:			
	Castor Change (deg)	0.2	0.2
+1 Turn	Height Change (mm)	0	0
	Camber Change (deg)	0.4	0.4
	Toe Change (mm)	1	1
SPRING PLATFORM:			
+1 Turn	Thread Step (mm)	2	2
	Height Change (mm)	3	2
ROLL CENTER HEIGHT:		N/A	HIGH

Procedure to Check Floor RF'98 – RF'03

The correct procedure for checking the subframe of a Van Diemen RF '98 to current is as follows:

1. Install engine bellhousing and gearbox with bolts snug, not tight.

2. Using a digital level, place it behind the front roll hoop on the lower frame rail (next to the fire bottle) on left hand side and zero level.

3. Place digital level on machined surface on cylinder head and check, also on machined surface on bellhousing and machined surface of gearbox and check.

4. If the engine, bellhousing and gearbox is higher than the horizontal plane, loosen upper front engine mounts and engine bay legs until level reads zero on all three surfaces. Measure the gap between the upper front engine mounts and engine bay legs and shim accordingly.

5. If the rear of the car is lower on all three surfaces, slide the engine, gearbox and bellhousing out, shim lower engine mount and engine bay legs accordingly.

6. Do not tighten lower bellhousing bolts to subframe until engine, bellhousing and gearbox are all level, check to see if there is a gap, if necessary shim.

It is very important you follow this procedure as it could cause damage to some of the components on the car.

FRONT SUSPENSION

Vertical or Spring Pre-load

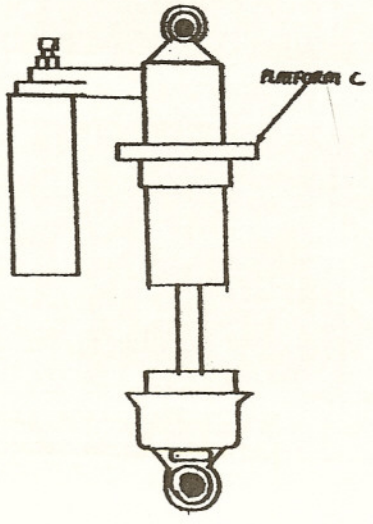
In a none pre-load condition, as long as the damper is not fully extended, turning the platform C raises the ride height and lowers slightly the pressure inside the damper.
When the damper gets fully extended, turning the platform C puts vertical spring pre-load on the car.

Please Note: That there is some pre-load in each damper, this pre-load depends on damper type, settings and internal pressure.

Pre-load is the force that has to be applied on the spring to start to modify its length with respect to its static value.

Setting the Car on Pre-load

Mount the damper - spring combination with the platform C just in contact with the spring. Mount the damper - spring combination on the car, with the car in the air screw platform C towards the spring, 2 mm or 1 turn at a time until the desired pre-load is attained.



PUSH ROD ADJUSTMENT

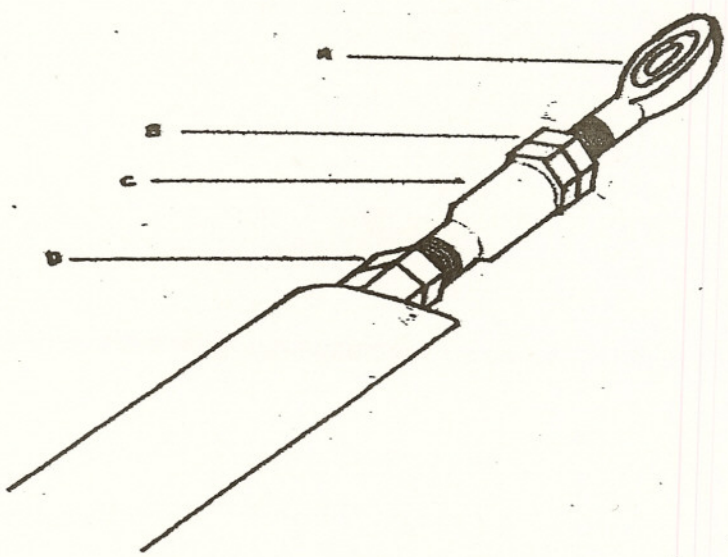
To adjust ride height, loosen jam nut B and jam nut D, then turn turnbuckle C clockwise to raise the ride height or anti-clockwise to lower the ride height. This must be done equally on both front push rods or like wise with both rear push rods. Ride height must not be changed by spring perch. Please be careful when tightening push rods jam nuts B and D as this will change corner weights slightly.

A: Rod End LH Thread

B: Jam Nut LH Thread

C: Turnbuckle RH Thread

D: Jam Nut RH Thread

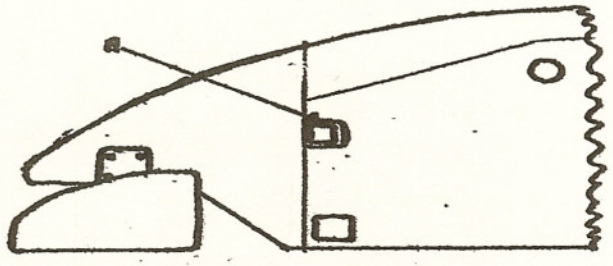


RIDE HEIGHT

Ride height is fundamental for setting and changing handling characteristics, and to a lessor degree the aerodynamic performance of the car.

Measuring Front Ride Height

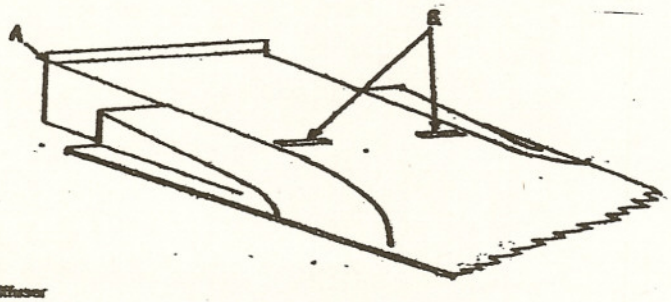
To measure front ride height, find the front leg of the top wishbone, the top of the mounting block is where the correct measurement is taken.
(Fig 1.)



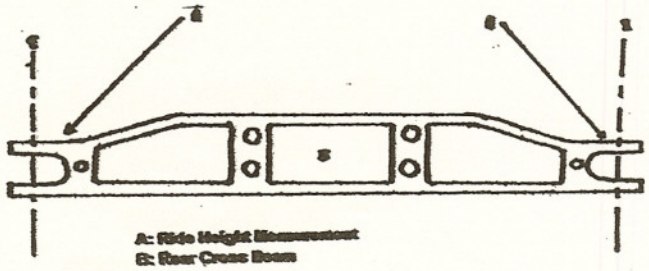
A: Measurement for Front Ride Height

Measuring Rear Ride Height

First cut a slot in the diffuser (Fig 2.) drop a ruler through the diffuser to the floor, rest against rear suspension cross beam. Read measurement to top flat surface of machined beam (Fig 3.) this will give you correct ride height measurement.



A: Diffuser
B: 1" L x 1/8" Wide Slots to Measure Rear Ride Height with Steel Ruler



A: Ride Height Measurement
B: Rear Cross Beam

RIDE HEIGHT MEASUREMENT SCHEMATIC

FRONT

Pickup	Floor
266	25
267	26
268	27
269	28
270	29
271	30
272	31
273	32
274	33
275	34
276	35
277	36
278	37
279	38
280	39
281	40
282	41
283	42
284	43
285	44
286	45

REAR

Crossbeam	Bellhousing
345	30
346	31
347	32
348	33
349	34
350	35
351	36
352	37
353	38
354	39
355	40
356	41
357	42
358	43
359	44
360	45
361	46
362	47
363	48
364	49
365	50

CASTOR

Castor is the vertical inclination of the hub, fore and aft of the car. Positive castor is the rear-ward tilt of the upright top.

Front

Castor is measured from lock to lock with the car at ride height, turn the front of the wheel to full lock (leading edge of rim away from car) zero digital gauge, then turn full lock in the opposite direction, (leading edge of rim towards car), read angle and this is your castor angle.

To change angle unbolt rear-ward leg of the upper wishbone, loosen jam nut, screw rod end inward for more castor or outward for less castor.

	AVON FC	AVON Z	GOODYEAR	HOOSIER
Castor Angle (Pos)	4	4.5	4	4

CASTOR

Rear

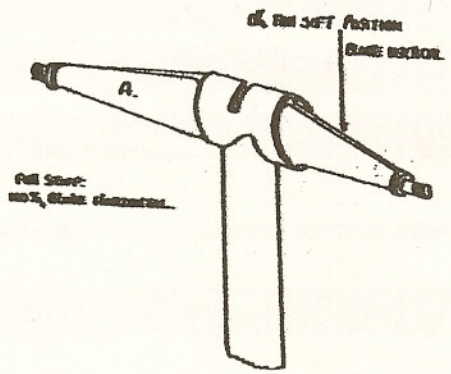
The rear wheel castor (not relevant because the wheel is not steered) can be checked using the block on top of the rear upright. Zero your digital level on the frame, put onto the upright and read the gauge this reading would be your castor angle.

	AVON FC	AVON Z	GOODYEAR	HOOSIER
Castor Angle (Deg)	0°	0°	0°	0°

ANTI ROLL BAR

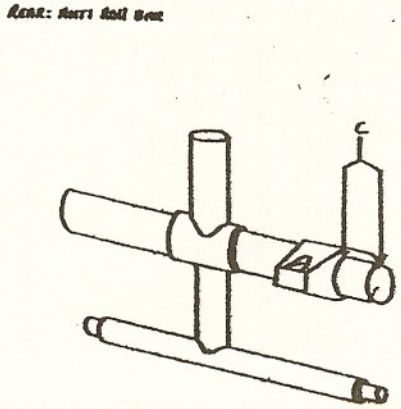
Front

The front anti roll bar is available in two sizes 7/8" and 5/8". With the 5/8" being used the most widely on the car. Stiffness is determined by the angle of the blade A, full soft being 0%, full stiff being 100%. It is best to set the car up during testing with the blade A at 50% (medium), this will enable the driver to adjust the car during a race depending upon track conditions and car handling.



Rear

As with the front anti roll bar the rear comes in two different sizes 5/8" and 1/2", with the 1/2" being the most popular. Stiffness is determined by moving the drop links inward from the outer edge C of the horizontal part of the anti roll bar.



AERODYNAMICS

FRONT WINGS

In order to measure the wings in relation to the car, **you must zero your digital gauge** on the fuel rail if Zetec or if Pinto on the machined surface of the gearbox above the CV joint.

FRONT MAIN PLANE

The front main plane is measured with a straight edge and digital gauge, laid on top of the wing next to the front wing mounting plates (fig 1. and fig 2.). To adjust to required angle place a washer between front wing mounting plate and main plane, equal size on both plates using the front bolt.

On a pinto car with anhedral front wing, place straight edge and digital gauge on horizontal part of the main plane next to the front flap.

FRONT FLAP

The measurement of the front flap is done by laying the digital gauge from the trailing edge of the front flap to the leading edge as in fig 3.

	Formula Continental	Zetec
Low Down Force	Main 1° Flap 8°	Main 2.3° Flap 8°
Medium Down Force	Main 2° Flap 14°	Main 2.3° Flap 16°
High Down Force	Main 2.5° Flap 20°	Main 2.3° Flap 25°

FRONT WING

A: Digital Angle Gauge

B: Straight Edge

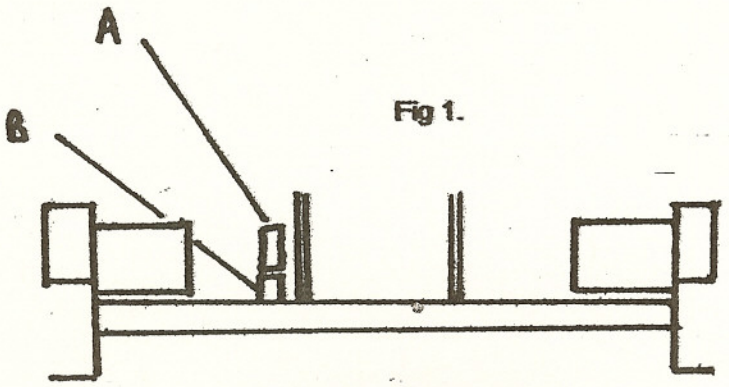


Fig 1.

FRONT WING VIEW MAIN

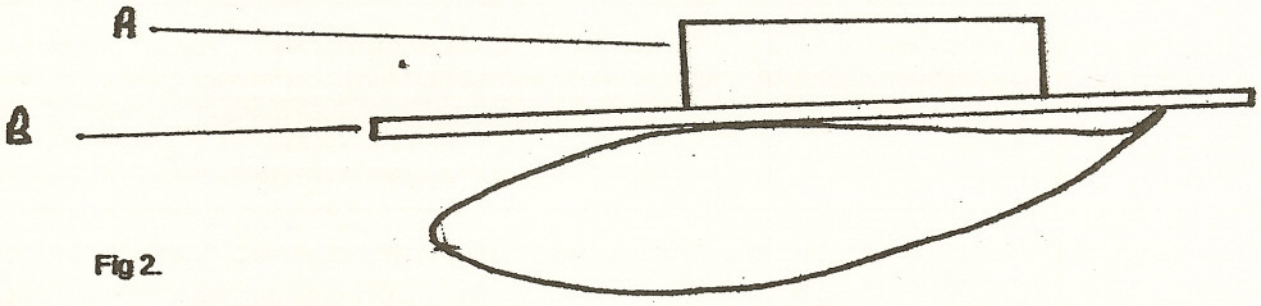


Fig 2.

SIDE VIEW FRONT MAIN

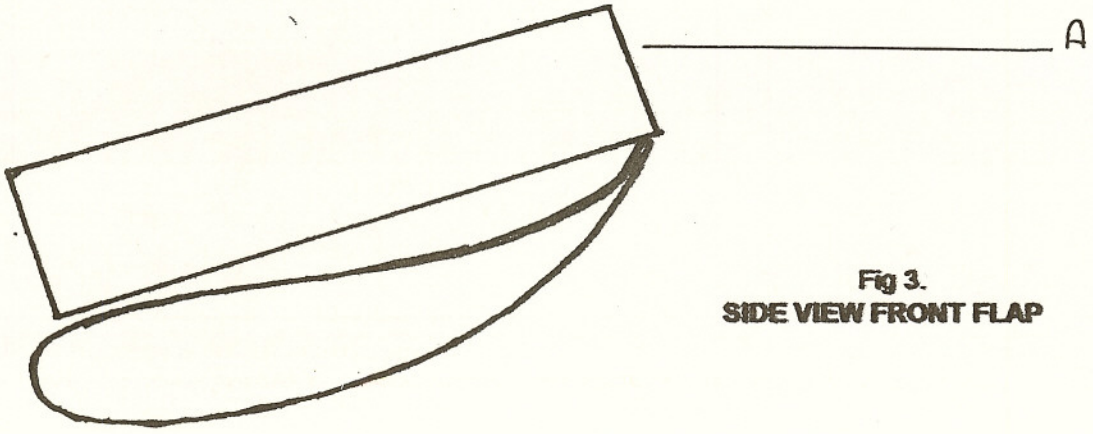


Fig 3.
SIDE VIEW FRONT FLAP

AERODYNAMICS

Rear Wing

As in the front wing the digital gauge **must be zeroed.**

Upper Rear Wing

The measurement on the rear wing is taken by laying a straight edge and digital gauge across both elements as in fig 1.

Lower Rear Wing

To measure the lower rear wing lay a straight edge and digital gauge across the wing as in fig 2.

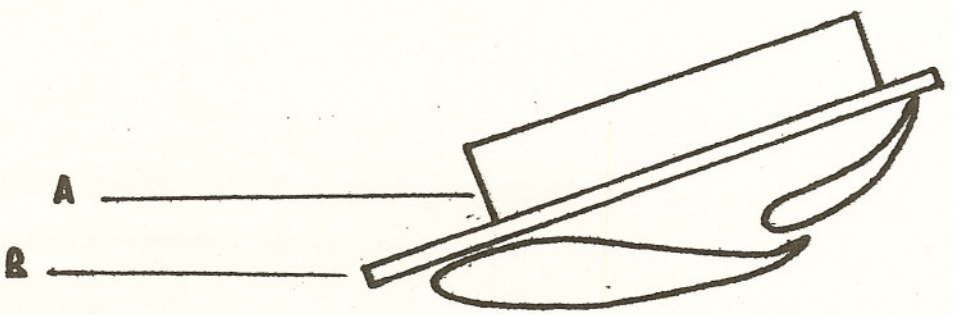
	Formula Continental	Zetec
Low Down Force	Upper 4° Lower + 3.5°	Upper 3° Lower + 3°
Medium Down Force	Upper 12° Lower + 2°	Upper 8° Lower + 1°
High Down Force	Upper 16° Lower 0°	Upper 18° Lower 0°

REAR WINGS

A: Digital Angle Gauge

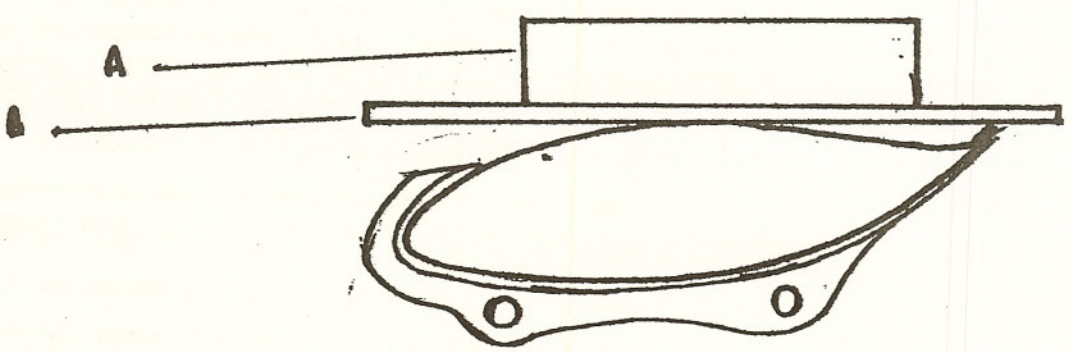
B: Straight Edge

Fig 1.



UPPER REAR WING

Fig 2.



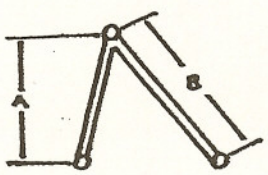
LOWER REAR WING

WISHBONE MAP ZETEC/CONTINENTAL

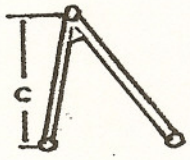
FRONT

UPPER WISHBONE	
A	22 1/2
B	25 3/4
TRACK ROD	
D	23 1/8

UPPER

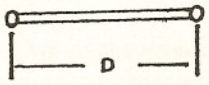


LOWER

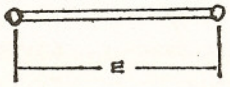


LOWER WISHBONE	
C	28 7/16
PUSH ROD	
E	25

TRACK ROD



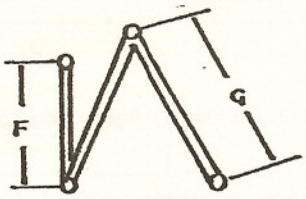
PUSH ROD



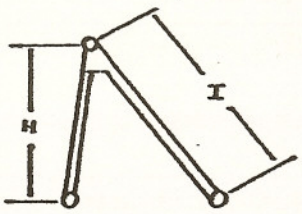
REAR

UPPER REAR	
F	16 3/8
G	24 5/8

UPPER

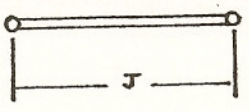


LOWER



LOWER REAR	
H	24 3/4
I	26 1/2
PUSH ROD	
J	22 1/2

PUSH ROD



TIGHTENING TORQUE'S

The table lists some suggested tightening torque's, for additional security use Loctite 242 or 243.

TIGHTENING TORQUE'S	LBS. FT
Engine Legs	40
Lower Upright	45
Front Upper Engine Mounts	40
Lower Bellhousing Bolts to Subframe	40
CV Joints	20
Center Lock Wheel Nuts	135
10-32 UNF 'K' Nut	2
1/4 UNF 'K' Nut	9
5/16 UNF 'K' Nut	18
3/8 UNF 'K' Nut	37

FLUID CAPACITIES		
Fuel		6 gal
Gear Box Oil		1.75 Qt
Gear change	Add dry	1 Qt
Motor Oil		5.5 Qt
Water		1.75 gal

SWG & CONVERSION TABLE

This table provides conversion from SWG (Std Wire Gage) to metric units for sheet-metal thickness.

SWG	8	10	12	14	16	18	20
Metric (mm)	4.064	3.251	2.642	2.032	1.626	1.219	0.914

CONVERSION TABLE

Length

1 inch = 25.4 mm	1 millimeter = 0:03937 in
1 foot = 304.8 mm = 12 in	1 centimeter = 0.3937 in
1 yard = 914.4 mm = 3 ft	1 meter = 39.37 in
1 mile = 5280 ft = 1.60934 km	1 kilometer = 0.62137 miles

Volume

1 cubic inch (C.I.) = 16387 cubic centimeters	1 cubic centimeter + 0.061 cubic inch
	1 liter = 1000 CC = 61.0255 cubic inch

Pressure

1 PSI = 0.0716 bar	1 Kg/cm2 = 1.019 bar
	1 bar = 10 Pa = 0.1MPa
	1 bar = 13.95 PSI

Weight

1 ounce (oz) = 28.35 grams	1 Kg + 1000 grams = 2.205 LB
1 pound (LB) = 16 ounces = 453.592 grams	

Speed

1 mph = 1.467 feet per second	
1mph = 0.62137 kilometers per hour	1 kilometer per hour = 1.60934 mph
1 IPS (in/s) = 25.4 mm/s	1 mm/s = 0.039 IPS

Specific Weight

Water = 1 Kg/l
Mineral Oil = 0.903 Kg/l
Gasoline + 0.74 Kg/l

Useful Formulas

Engine Displacement = 0.7854 x bore x bore x stroke x no. of cylinders
British horsepower (BHP) = RPM x torque (lbs. ft)/5250
MPH = RPM x tire diameter (in)/(gear ratio x 336)
Km/h = RPM x tire diameter (mm)/(gear ratio x 5308)
Lap speed (MPH) = track length (miles) x 3600/lap time (seconds)
Lap speed (Km/h) = track length (Km) x 3600/lap time (seconds)
Average speed (MPH) = track length (miles) x 3600 x no. of laps/total time (seconds)
Average speed (Km/h) = track length (Km) x 3600 x no. of laps/total time (seconds)

GEAR RATIO'S FORMULA ZETEC

CWP 13:36

CIRCUIT	1ST	2ND	3RD	4TH
DAYTONA	15-30	18-28	19-24	24-26
KERSHAW	15-30	17-28	20-27	24-28
LIMEROCK	16-30	16-24	19-24	24-28
MID OHIO	15-30	18-28	20-27	24-28
MOROSO	15-30	18-28	20-27	24-28
PHOENIX	16-34	17-30	19-27	24-28
RD. AMERICA	16-34	17-28	20-27	24-27
ROEBLING ROAD	15-30	19-27	19-24	24-27
SEBRING LONG	15-30	17-28	20-27	24-27
RD. ATLANTA	15-30	18-28	20-27	24-27

GEAR RATIO'S FORMULA CONTINENTAL (PINTO)

CWP 10:31

CIRCUIT	1ST	2ND	3RD	4TH
BLACKHAWK	16-29	18-29	20-27	21-25
DAYTONA	16-29	19-27	21-25	24-24
FIREBIRD	17-30	18-28	20-27	24-27
HOMESTEAD	15-30	17-28	21-27	24-28
KERSHAW	16-30	18-29	20-27	21-24
LIMEROCK	16-24	18-25	21-27	24-26
MID-OHIO	17-30	18-28	21-27	24-27
MOROSO	16-30	18-28	20-27	24-27
PHOENIX	16-34	17-28	18-25	21-24
PORTLAND	17-28	18-25	24-28	24-26
ROAD AMERICA	16-30	18-28	19-23	24-26
ROAD ATLANTA	16-29	19-27	19-23	24-26
ROEBLING ROAD	15-30	18-25	21-25	24-26
SEARS POINT	15-30	18-29	20-27	24-27
SEBRING CLUB	15-30	18-29	18-25	21-24
SEBRING LONG	15-30	18-29	19-23	24-26
TROIS RIVIERES	15-30	17-29	19-27	19-23
WATKINS GLEN LONG	18-29	20-27	21-25	24-26
WILLOW SPRINGS	17-29	19-27	21-27	24-26

ASSEMBLY ROUTINE

This list is to prevent you from doing things twice.

UNPACKING:
Remove car from box.
Remove parts from packing.
Check list all parts to make sure they are there.
Parts that need sending away for paint or treatment, get together and box up ready for shipping.
Body work and wheels that you don't need during assembly put to one side.
Keep all remaining parts together for easy working access.

ONLY NOW PROCEED WITH THE CAR:

1 Remove gear box from bellhousing and put to one side.
2 Remove bellhousing from chassis and put to one side.
3 Flip and fit the floor.
4 Install master cylinders and heat shrink lines to rear.
5 Check inside fuel cell.
6 Install lead.
7 Install heatshield on left rear cover, sidepod.
8 Jig suspension.
9 Route all cables, wires and radio harness accordingly.
10 Install PI system.
11 Install Pectel Loom.
12 Install Motor, level and spacer everything with proper spacers made on the lathe.
13 Clean and reseal bellhousing, re-install to the car.
14 Bolt on bellhousing to gear box, then do set up and install correct ratios. Remove long stud on the selector housing, silicone breather and end case cover. Install proper end plates. Assemble rear suspension, zero castor rear.
15 Make oil lines, Heat shrink all steel braided lines.
16 Heat shield for the starter.
17 Assemble uprights, front suspension and switch rotors.
18 Fill and check all fluids prior to running motor. Run motor to make sure everything works including PI system.
19 Fit diffuser and tail, make seat and fit mirrors.

20 Bleed clutch and brakes.

MAINTENANCE

After a hard day of racing here are some duties that should be performed. Whilst performing these duties take care to inspect the car for possible failures.

1 Remove tail section, upperside pods and shock cover.

2 Remove seat and vacuum car.

3 Charge battery.

4 Inspect engine bay, oil lines, hose clamps, etc.

5 Clean suspension and uprights.

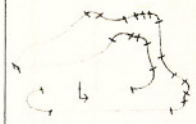
6 Nut and bolt drive train.

7 Nut and bolt suspension.

8 Check fluids.

9 Clean and wax the car.

Pi Club Expert Windows

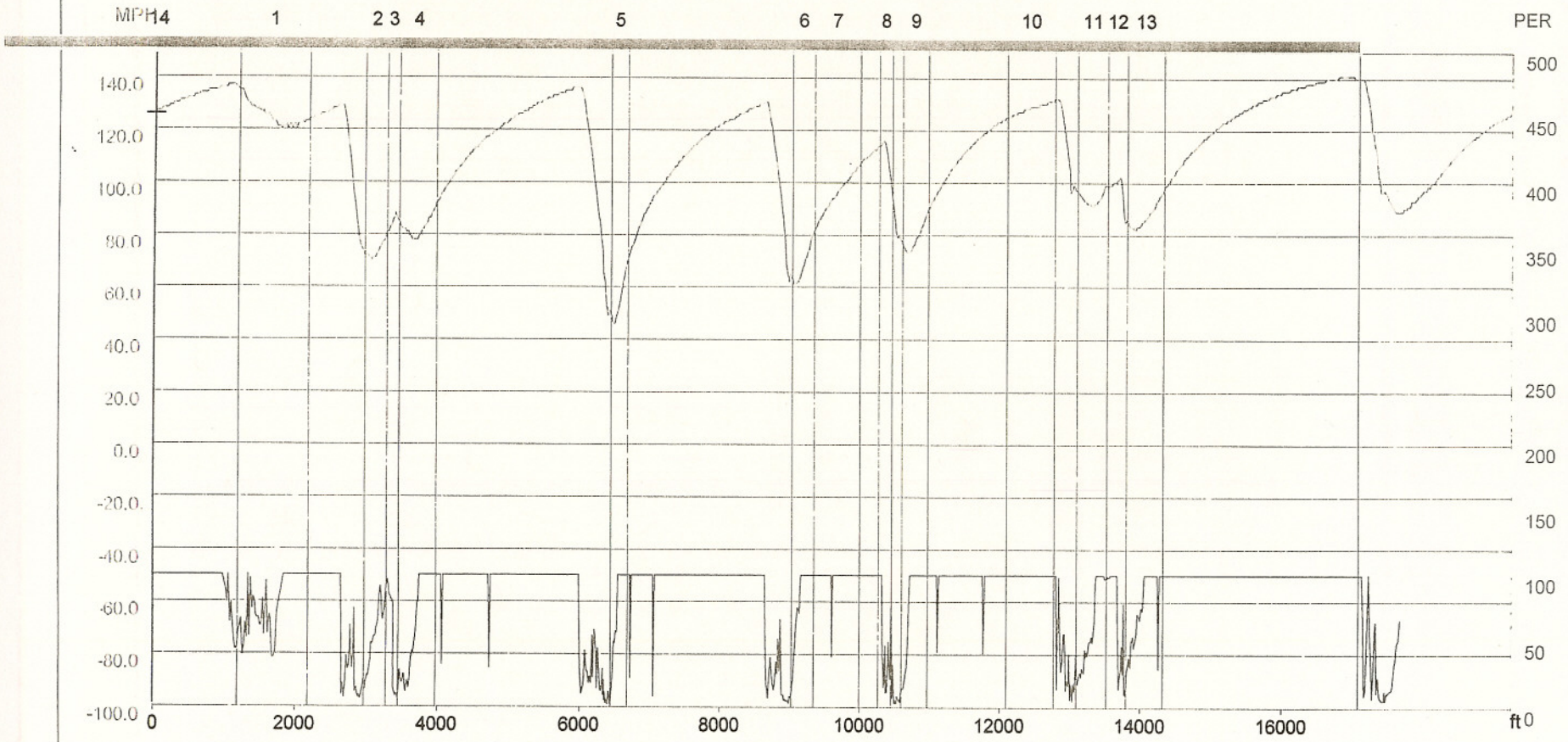


Lap 9 of 12
Date 9:52 12/03/03
Note: ZETEC

Lap Time 02:03.94
Driver Ian Baas

: sebring long course

Comment:



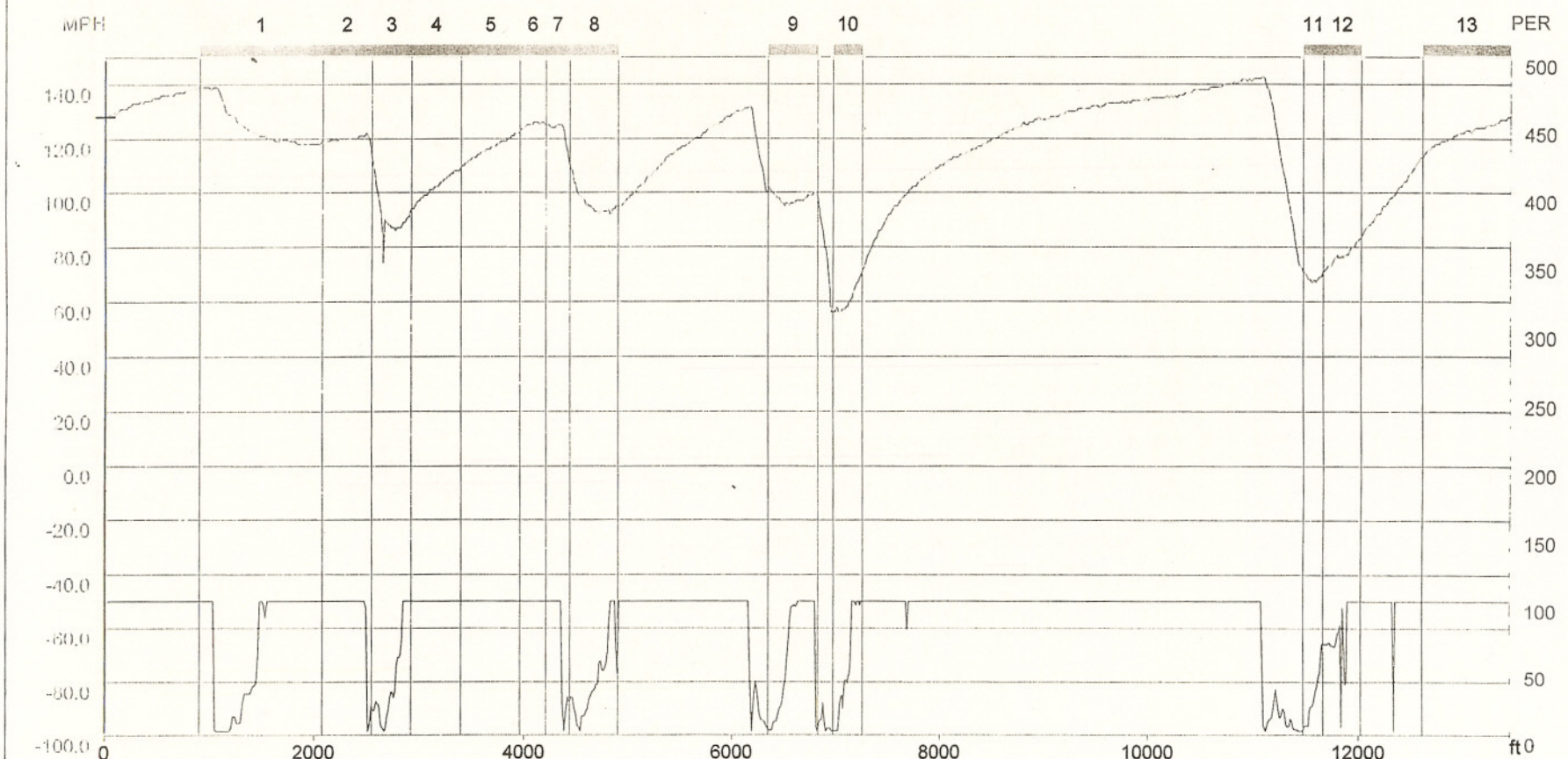
Lap 7 of 16
Date 17:44 15/10/03
Note: ZETEC

Lap Time 01:23.75
Driver David Clarke

: Road Atlanta

DI Research

Comment:



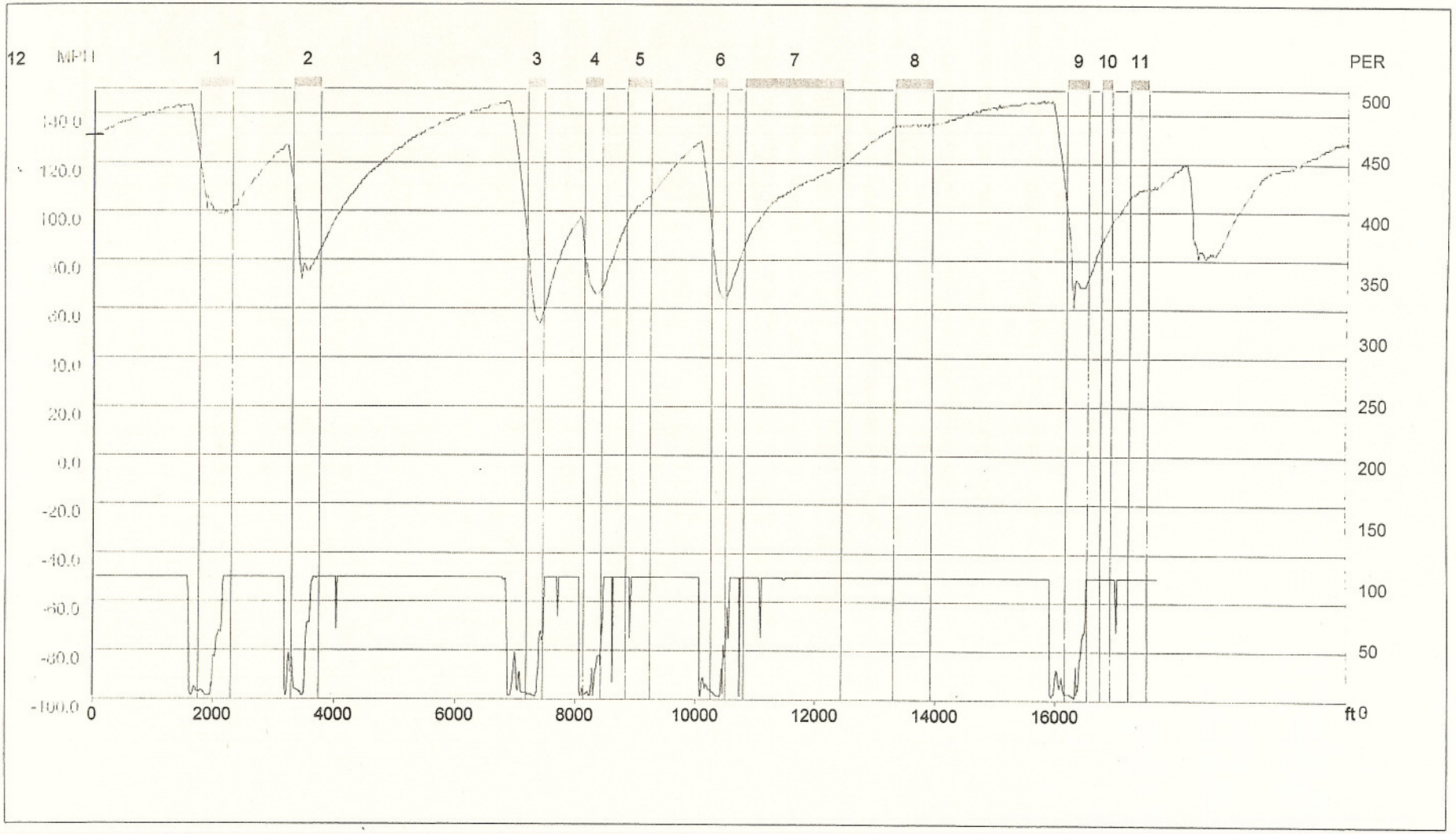
Pi Club Expert Windows

Lap 9 of 15
Date 12:39 3/08/03
Note: ZETEC

Lap Time 02:13.35
Driver David Clarke

: Rd America

Comment:

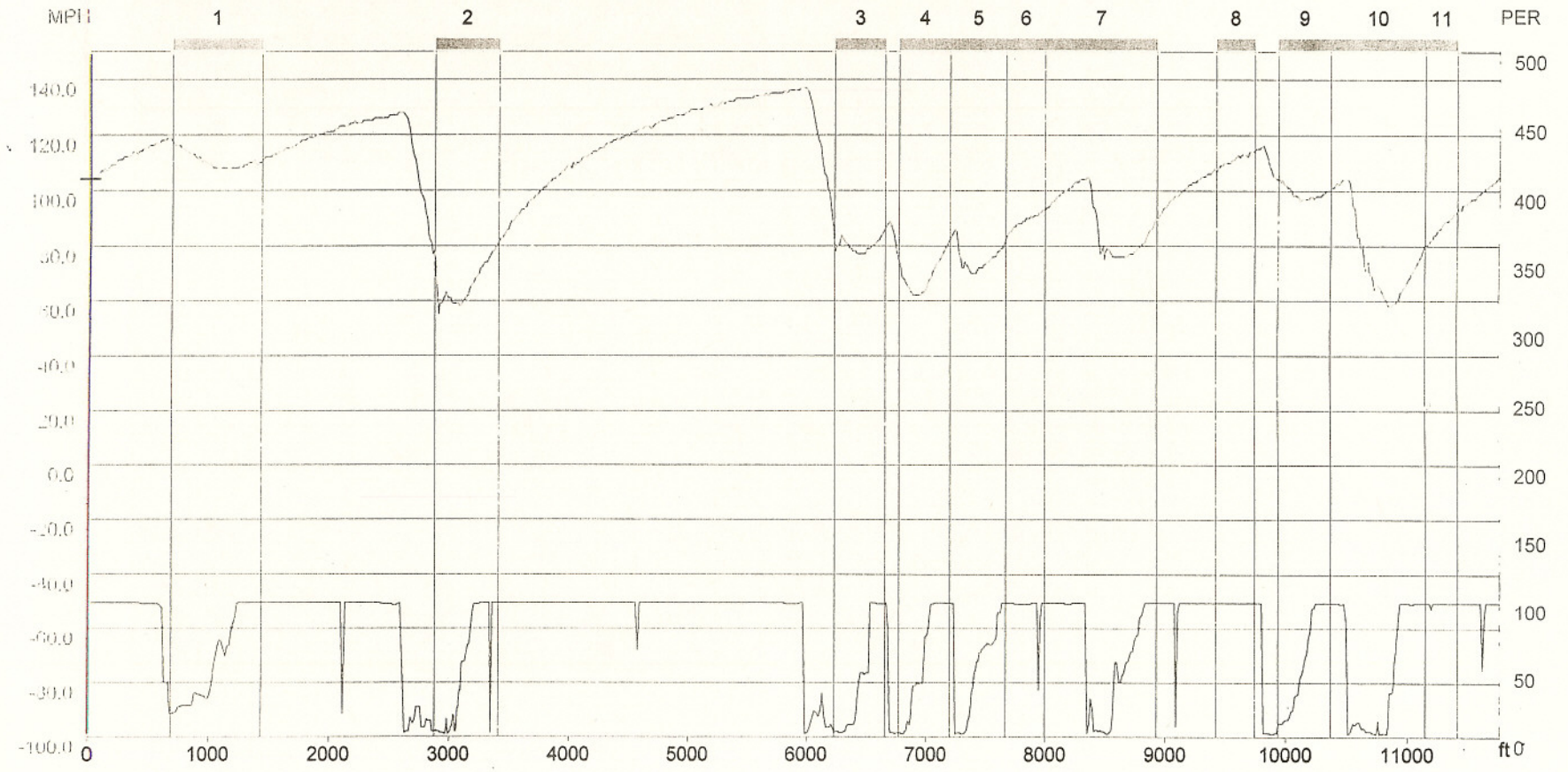


Lap 13 of 18
Date 14:28 9/08/03
Note: ZETEC

Lap Time 01:23.15
Driver David Clarke : M-O Indy

DT Research

Comment:

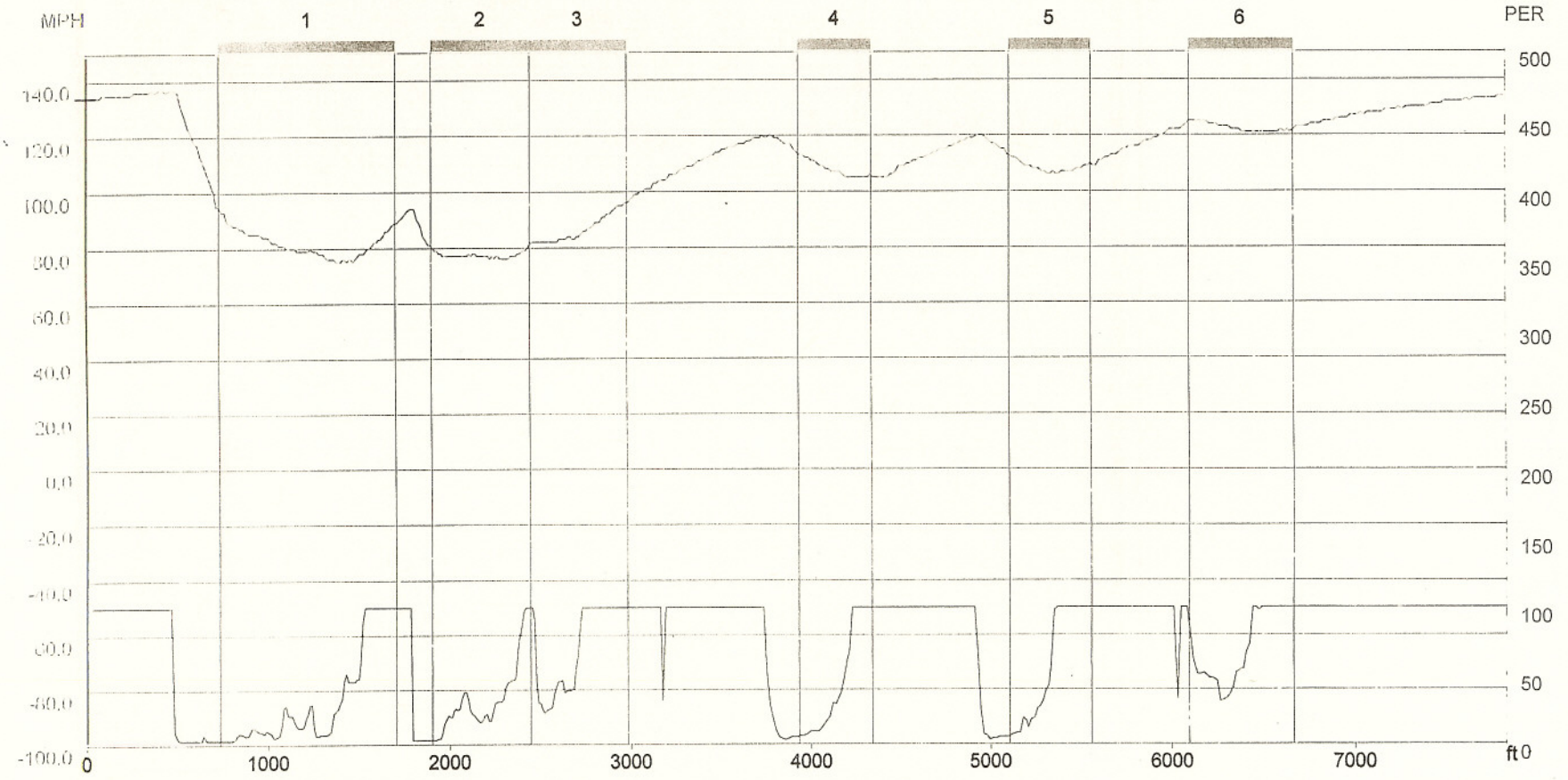


Lap 23 of 33
Date 17:01 24/05/03
Note: ZETEC

Lap Time 00:51.10
Driver Andy Brumbaugh : Limerock

DI Research

Comment:



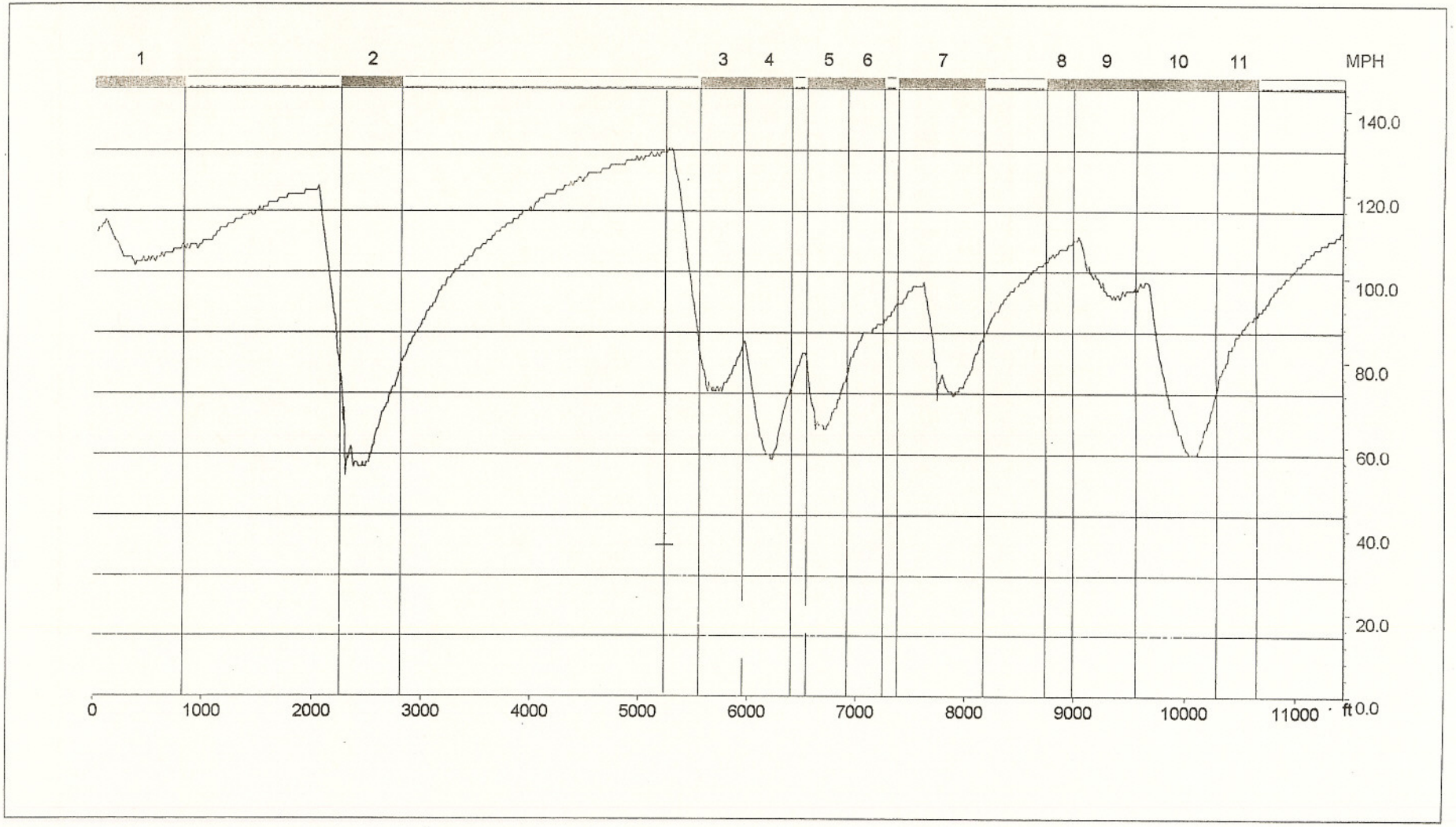
Pi Club Expert Windows

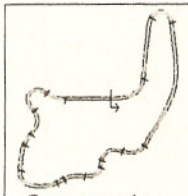
Lap 3 of 9
Date 14:05 10/08/01
Note: Pinto, Mid Ohio

Lap Time 01:24.63
Driver Unknown
: M-O Indy

DI Research

Comment:



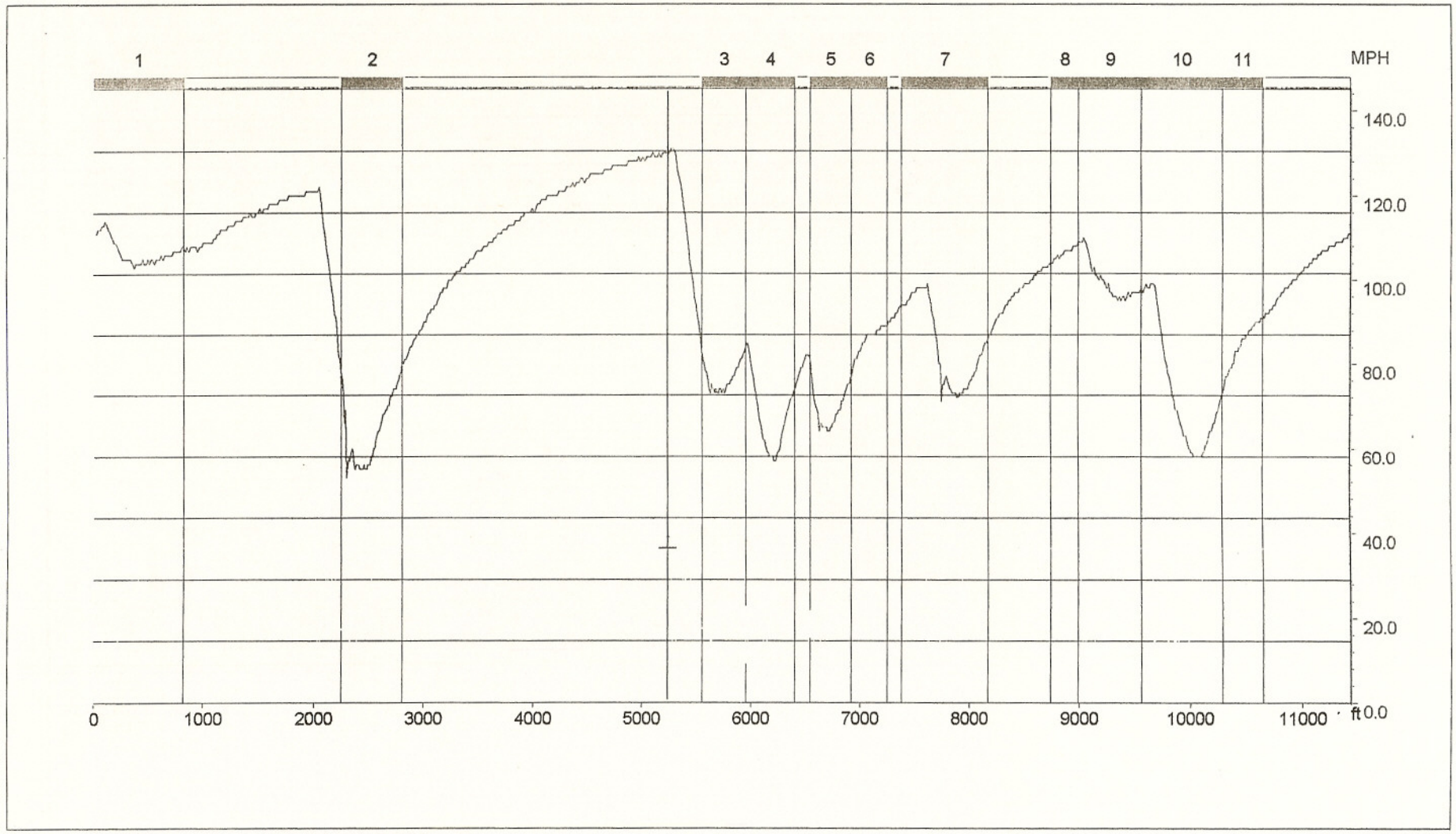


Lap 3 of 9
Date 14:05 10/08/01
Note: Pinto, Mid Ohio

Lap Time 01:24.63
Driver Unknown
: M-O Indy

DI Research

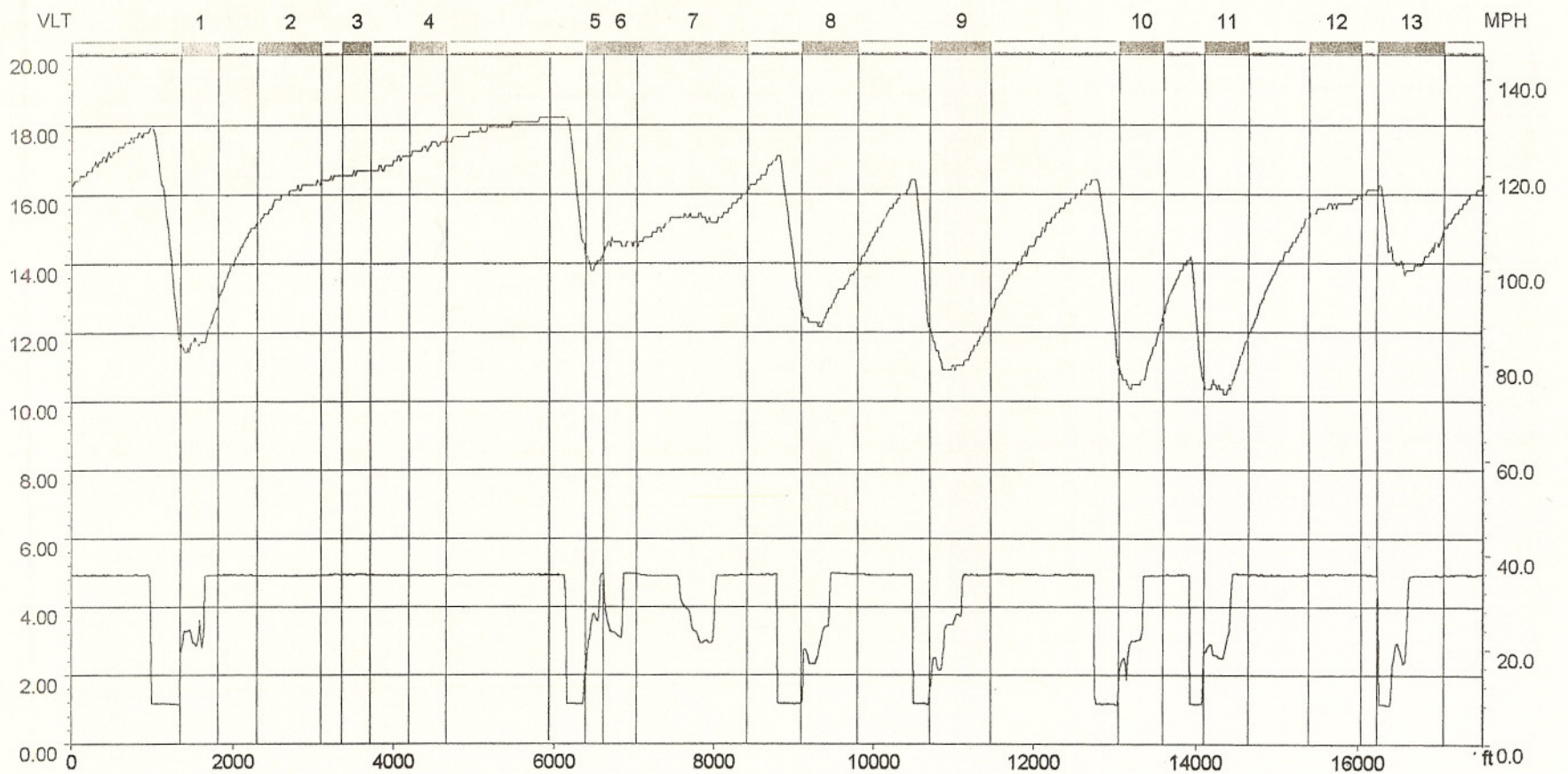
Comment:



Lap 5 of 6 Lap Time 01:52.98
Date 7:57 20/05/01 Driver Peter : Glen Long
Note: Pinto, Watkins Glen Long.

DI Research

Comment:

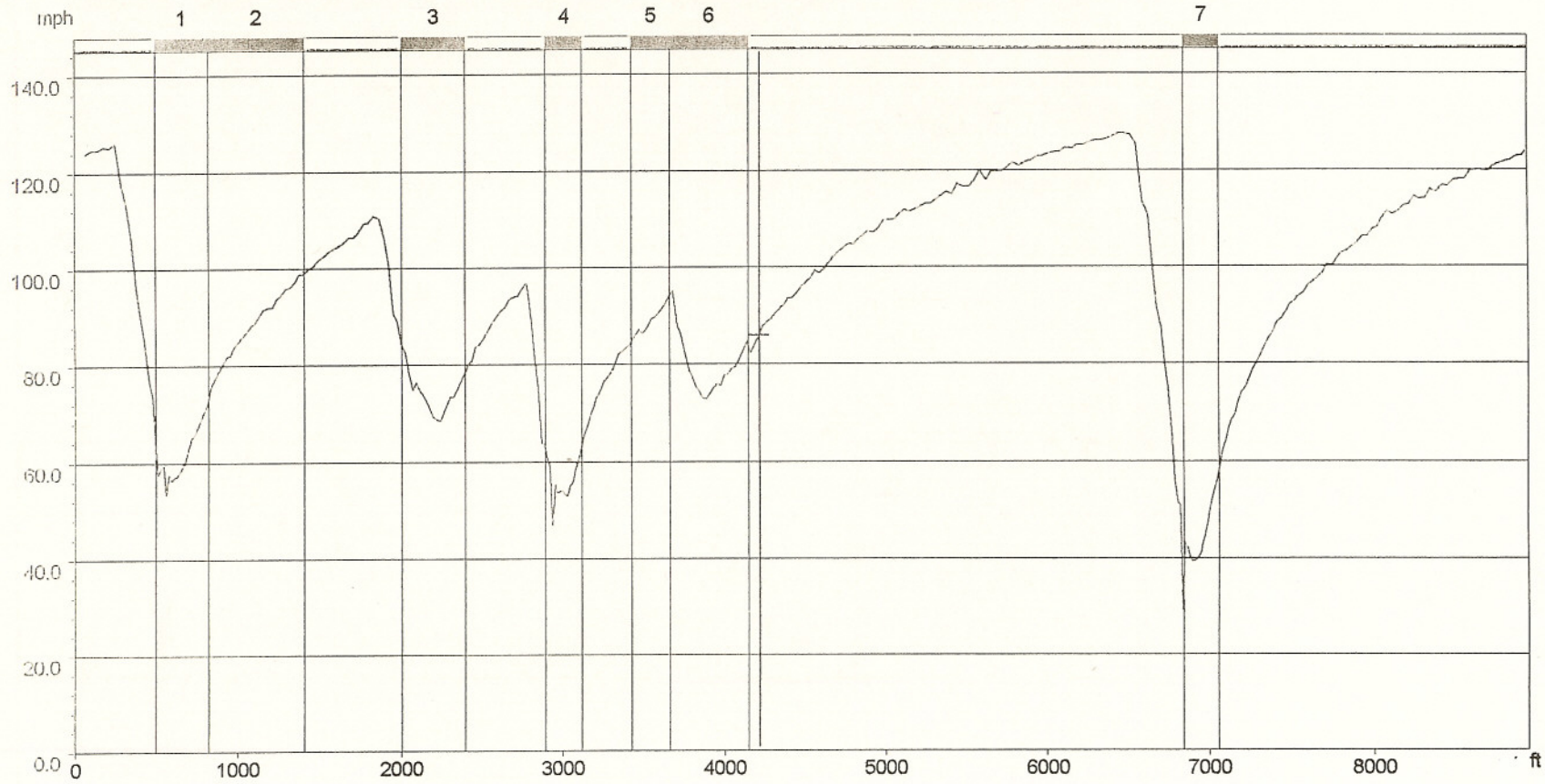


P1 Club Expert Windows

Lap 3 of 7
Date 15:40 14/04/98
Note: Pinto, Sebring Short

Lap Time 01:08.53
Driver David : SEBONE

Comment:



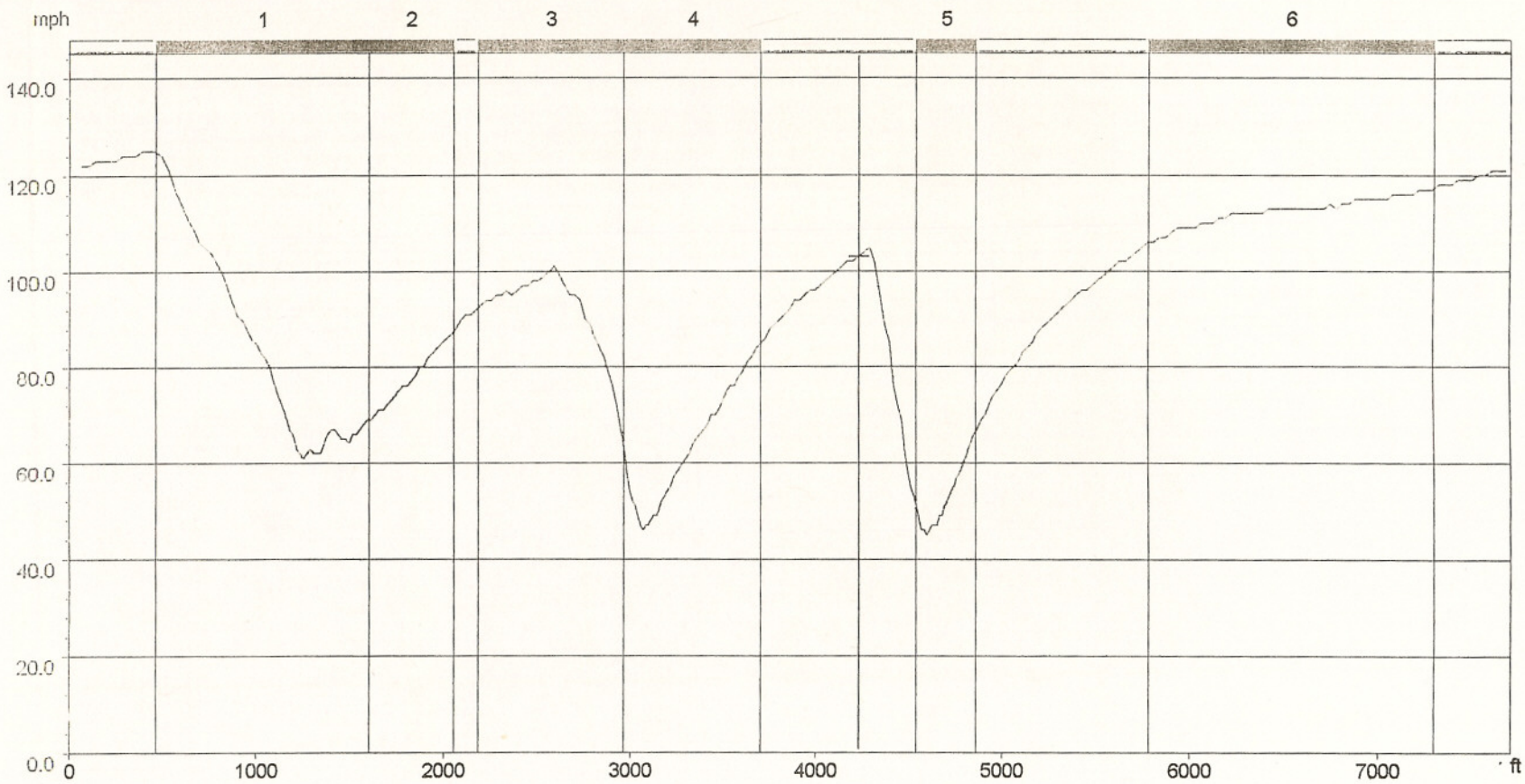
Lap 21 of 22
Date 0:38 17/04/97
Note: Pinto, Pheonix Road.

Lap Time 01:00.75
Driver BESNARD

: PHOENIXR

DI Research

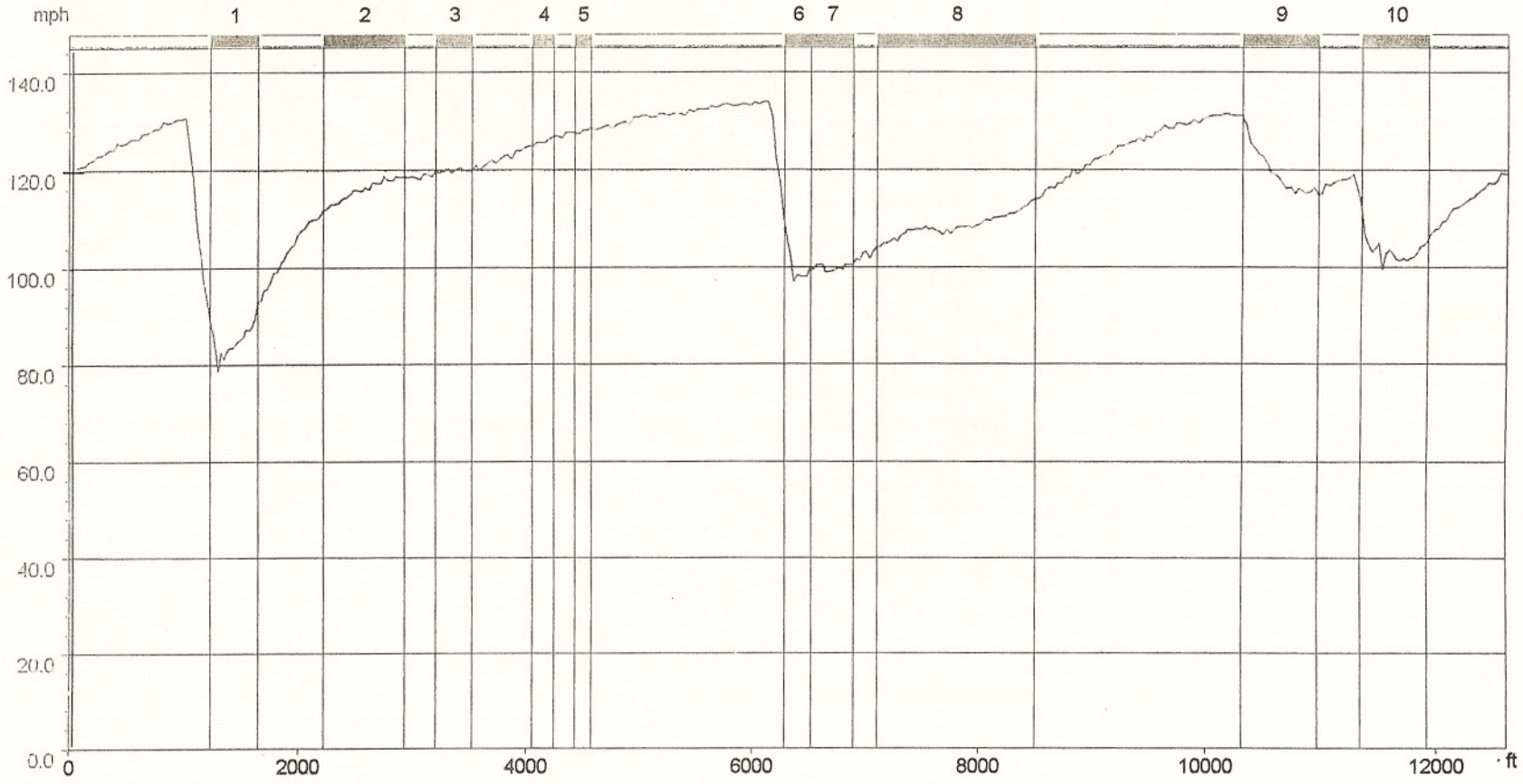
Comment:



Lap 4 of 13 Lap Time 01:15.06
Date 9:32 30/05/98 Driver Sam : GLEN
Note: Pinto, Watkins Glen Short.

Research

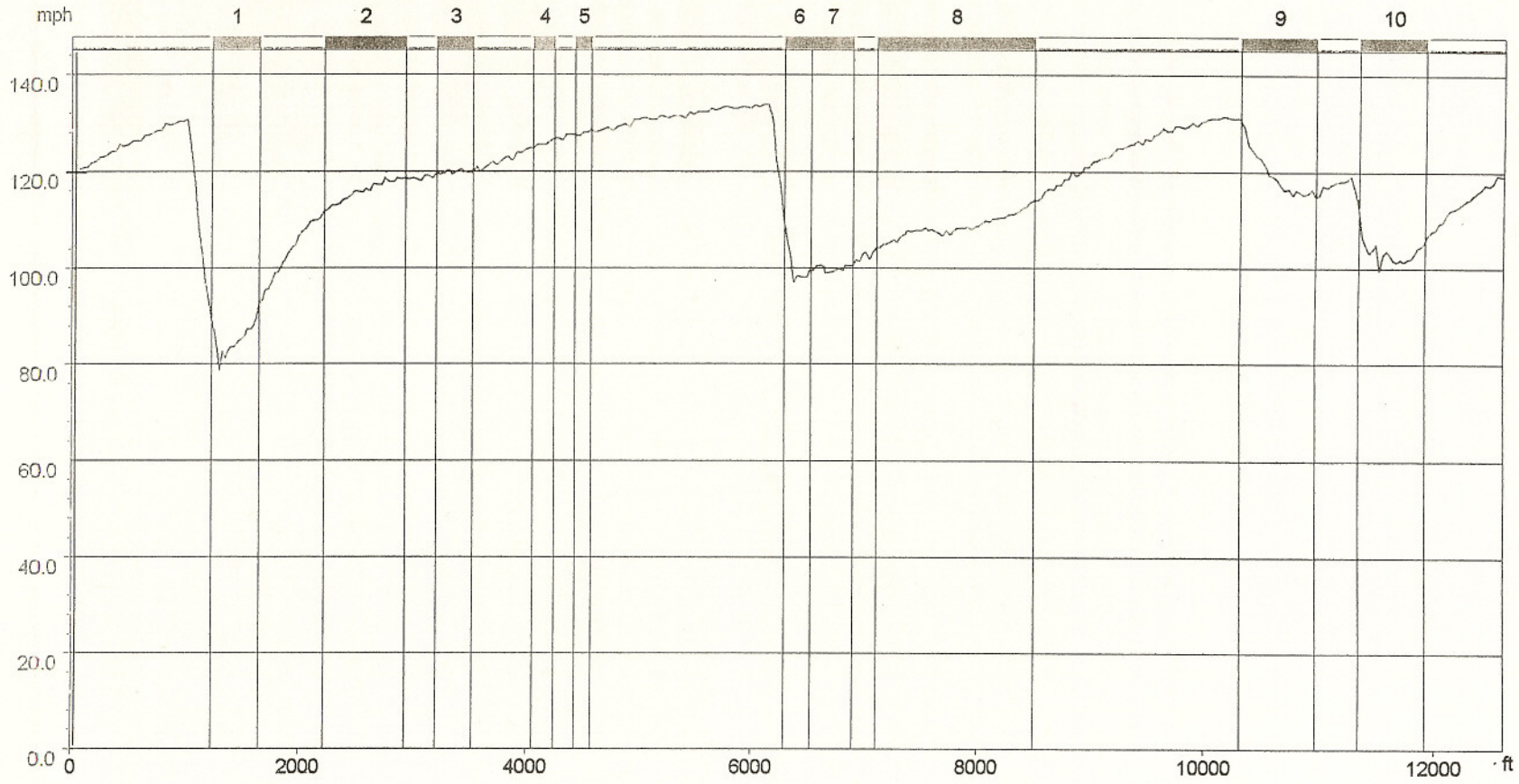
Comment:

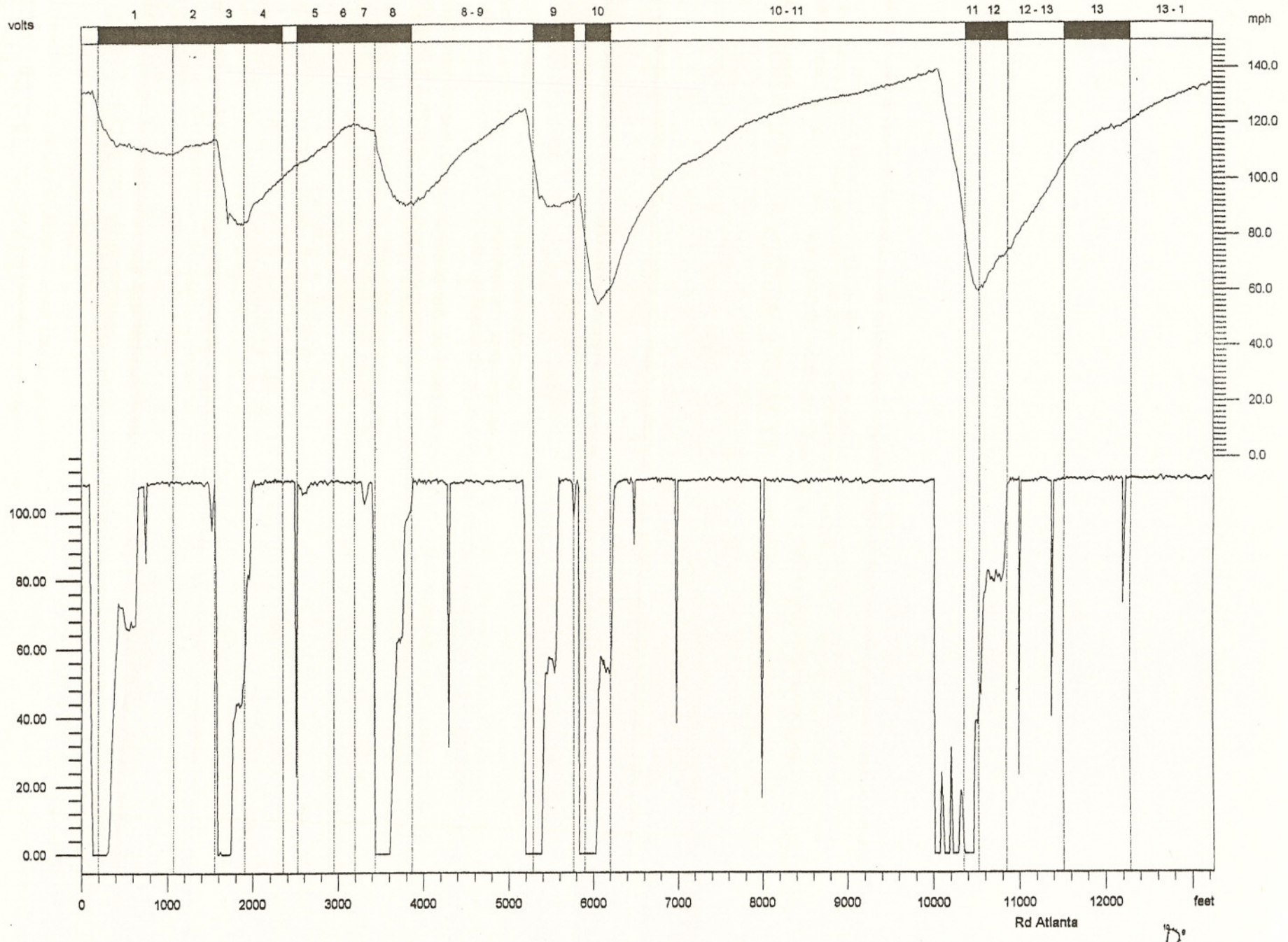


Lap 4 of 13 Lap Time 01:15.06
Date 9:32 30/05/98 Driver Sam : GLEN
Note: Pinto, Watkins Glen Short.

DI Research

Comment:





Pinto, Road Atlanta

Channel	Lap Time	Data Set	Filter	Driver	Car	Date & Time
Throttle	1:25.94	<001:042:172>		AJ		Sat Jul 24 13:52:10 1999
Speed	1:25.94	<001:042:172>		AJ		Sat Jul 24 13:52:10 1999

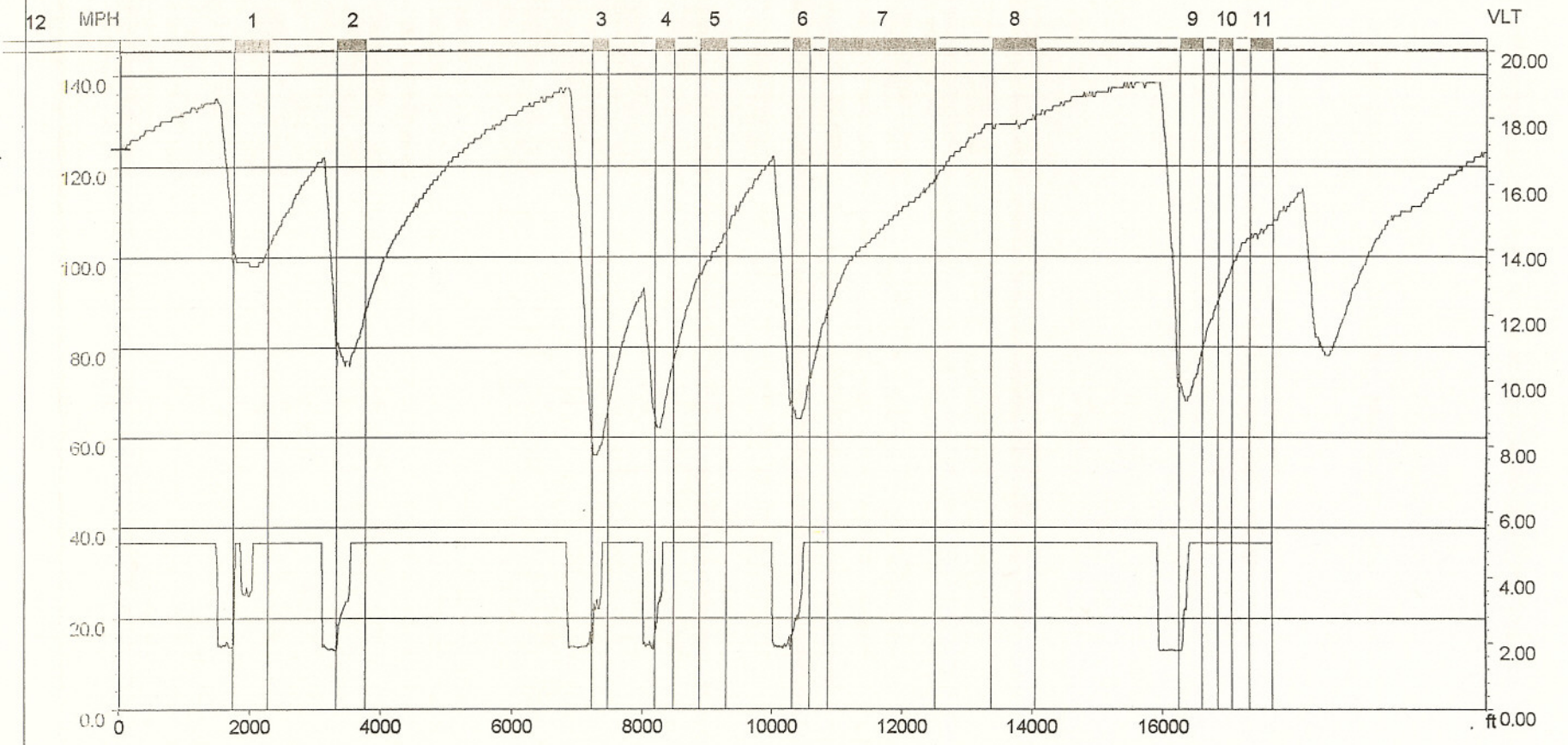
Pi Club Expert Windows

Lap 11 of 18
Date 6:56 7/07/01
Note: Pinto, Rd America

Lap Time 02:15.73
Driver Peter
: Rd America

DI Research

Comment:



ZETEC INFORMATION

Data Systems (Dashes)
Pi, Stack, Motec, and others the ECU can be programmed for any of them. The chassis wiring harness has a data stream outlet that will supply the dash with rpm, water temperature, oil temperature, oil pressure, fuel pressure, battery voltage and throttle position. Any additional inputs a special harness from the dash manufacture is available.

Alternator
By the end of the first race weekend it was obvious that an alternator was necessary. The recognized legal setup is driven off the rear axle using a single wire alternator. There is a mounting kit available from Van Diemen or Primus West, which has made what I feel, is a cleaner kit. Quicksilver has supplied quite a few teams with an alternator, which we purchase from a company that supplies most of the Winston cup teams.
Primus West phone # 559-277-1300

ZETEC INFORMATION

Throttle Position Sensor

The throttle position sensor or TPS is located on the bottom of the intake manifold this sensor tells the ECU the position of the throttle plates.

The settings for the TPS are determined on the dyno especially the closed position or idle position.

As you have noticed there are 2 throttle stops on the bottom of # 4 intake runner idle and full open these are set on the dyno and Loctited. **(DO NOT CHANGE THESE)**

BEFORE you run the engine for the first time check the TPS readings on your dash at closed and full open and record them. *

It is important that these settings are maintained so the ECU is receiving the proper information.

The most likely reasons for these settings to change are throttle cable not enough slack or **pedal stop** not set correctly and wear.

*A coms cable between the ECU and your laptop is available. Also FF2000MON and DATALOG soft ware.

ZETEC INFORMATION

Coolant Water pump lube, water wetter, or some type of anti corrosive.

Oil The engine was dynoed with Valvoline 10/30 petroleum. We are pro synthetic and recommend you use a 10/30 synthetic.

Oil Cooler or Heat Exchanger

When the ambient air temp is above 95 degrees one or the other is necessary. When you fit either one plumb it pressure out pressure in.

Fuel We use 100LL AvGas on the dyno with no problems. Any proper **leaded** racing fuel will work octane need be no higher then 105

Electrical Connections

We found over the season that high quality dielectric grease is a must on all the connections on both chassis and the engine.

Rev Limiter The ECU is programmed with a soft cut at 7000 and hard cut at 7200

Shift Point Use 6600/6700 peak HP is at 6500/6600

ZETEC INFORMATION

Proper procedure for aligning engine and sub frame

Install engine to bellhousing and gearbox.

Install assembly into the chassis have all bolts snug but **not tight**.

Using a digital level, place it behind the **front** roll hoop on the lower frame rail (next to the fire bottle) on left hand side and zero level.

Place level on machined surface of cylinder head and check, also on the machined surface of bellhousing and transmission and check.

If the assembly is higher than the horizontal plane, loosen upper front engine mount and engine bay legs until the level reads zero on all three surfaces. Measure the gap between the upper front engine mount and engine bay legs
and shim accordingly.

If the assembly is lower on all three surfaces, slide the assembly out, shim lower engine mount and engine bay legs accordingly.

Do not tighten lower bellhousing bolts to sub frame until assembly is level. Check to see if there is a gap, if necessary shim.

ZETEC INFORMATION

Typical Gauge Readings

Oil pressure at or around 6000 rpm 65 to 75 PSI

Oil temperature usually runs between 225F & 255F

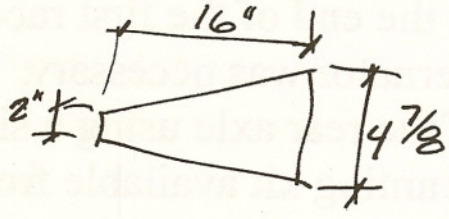
Fuel pressure 60 PSI

Water temperature 185 to 205 Fahrenheit

Battery voltage 12.5 to 14.5 average

Idle rpm 1250 to 1325

AIR FILTER K&N 28-4125



ZETEC INFORMATION

Water System

This engine requires the same time consuming bleeding as the Pinto engine did.

We have gone to a lot of work to come up with a proper thermostat assembly, which is easy to install and maintain. But it will require a **proper** bleeding procedure because it has only a 1/8 hole for water to bleed until the thermostat opens.

The best ways to ensure the cylinder head is full of water before starting the engine or during the first fill is to remove the -3 line from the thermostat housing and fill until water comes out then replace the line. In the past you know that when the RPM of the engine is around 3500 water should come out of the -3 fitting **into** the header tank with some force behind it.

The thermostat should be used since the fuel injection system uses water temp as one of it inputs. Also in my opinion taping off radiator intakes is not a proper way to control water temperature

ZETEC INFORMATION

Pressure Sensors

After a season it has been determined that both the oil and fuel pressure sensors cannot be hard mounted. The **only** way they will operate correctly is to be connected to the pressure source by normal type braided steel hose **not** Teflon lined hose. Both sensors need the slight expansion of the hose to dampen the pulse.

Fuel Filters

A fuel filter should be installed between the outlet of the fuel tower and the fuel rail. Any inline style -6 in -6 out will work.

ZETEC INFORMATION

Bellhousing

The lower most outward bellhousing to engine block bolt locations should be tapped deeper make sure bolts are long enough.

Lower Engine Mount Bolts

The oil sump at the front has 3/8 - 16 thread inserts. The bolts supplied from Van Diemen are 10mm get the correct bolts.