Inspiring Engineers

Greenpower

Institution of MECHANICAL ENGINEERS

THEORY TEST

AND

CIRCUIT GUIDE

FORMULA 24/24+

THEORY TEST

The Greenpower Theory Test aims to teach drivers, both new and familiar with Greenpower, the basic rules of racing in a safe manner. It also includes a section on basic vehicle information so that all drivers have some knowledge of what to do in the event of a break down, or in the unlikely scenario of an incident.

All questions are multiple choice, and the answers are given on a page at the back of the Theory Test section. There are no pass levels or grades; this is simply a tool for learning so all drivers are better prepared than ever before taking to the circuit.

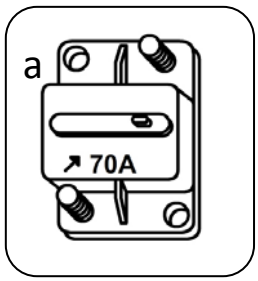
Compiled with assistance from Sandbach High School's C.A.U.C team – Formula 24 National Champions in 2008.

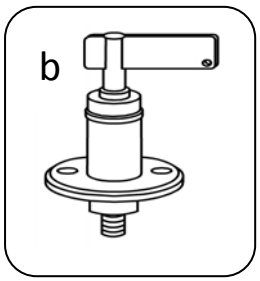
CIRCUIT GUIDE

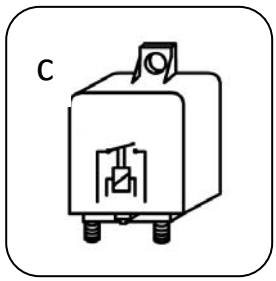
The theory test is followed by an overview of all the circuits used for Greenpower racing in the Formula 24 and 24+ categories, including the ideal racing line and useful information about each venue.

SECTION 1:
ESSENTIAL INFORMATION ABOUT YOUR VEHICLE

1) Which of these is a battery isolation switch?







2) When should the battery isolation switch be turned to the OFF position?
   a) At all times when the vehicle is moving
   b) When stationary in pit and paddock areas
   c) As the race starts

3) How many batteries are required to power the vehicle?
   a) 2
   b) 4
   c) 1

4) The vehicle regulations state that the helmeted head of the driver must be a certain distance below a line drawn between front and rear roll bars. What is this distance?
   a) 0mm
   b) 50mm
   c) 500mm

5) A transponder will be issued to each vehicle at the event. What is this for?
   a) Counting the number of spectators
   b) Signalling to the team
   c) Counting and timing each lap completed

6) An electrical fuse/cut-out will be fitted to your vehicle. You need to know where it is located so you can reset it if necessary. When is it most likely to need resetting?
   a) In the paddock
   b) At slow speed travelling uphill
   c) Travelling downhill

7) The regulations require you to be able to exit the car within which time limit:
   a) 6 seconds
   b) 2 seconds
   c) 10 seconds

SECTION 2:
SAFETY

8) At what point should the mirrors be adjusted to your position?
   a) Before leaving home
   b) As you get into the vehicle to drive
   c) Halfway round your first lap

9) For forgetting your Greenpower driver licence, the team would receive a time penalty of:
   a) 60 minutes
   b) 1 minute
   c) 10 minutes

10) Why must lifting points be clearly marked on the outside of the vehicle?
    a) So recovery marshals know where to lift safely
    b) For the benefit of spectators
    c) To give the team extra work before an event

11) Which six of these must be checked by a pit lane marshal before you drive:
    a) Tight helmet strap
    b) Bodywork polished
    c) Long hair tucked into helmet
    d) Batteries fully charged
    e) You have plenty to eat
    f) Overalls fully on
    g) Gloves on
    h) Safety Harness tight
    i) Visor down or goggles on
    j) Vehicle length

12) Three flag colours are used by circuit marshals. These are Red, Black and Yellow. Which of these matches each flag signal?
    a) Cease racing, proceed slowly around track until indicated to stop
    b) Slow down, no overtaking, take extra care
    d) Sin Bin penalty awarded to your car

13) Driving on a punctured tyre is dangerous. If this occurs whilst on track you should:
    a) Pull to the side and await recovery
    b) Drive at full speed back to the pits
    c) Try and mend it yourself trackside

14) Marshals perform many duties at events. Which three of these are the main roles for marshals that you might come across?
    a) Chatting
    b) Making tea
    c) Collecting broken down vehicles
    d) Enforcing a safe pit lane
    e) Flag signalling on circuit
    f) Timing laps

SECTION 3:
DRIVING

15) When might it be necessary to use your horn when overtaking?
    a) Signalling to your team
    b) Warning a slow car in front that you're approaching
    c) Coming into the pit lane

16) How should you tell other drivers around you that you're about to enter the pit lane?
    a) Shout a warning
    b) Stop, check your mirrors, then proceed
    c) Make a clear hand signal

17) When overtaking, you must:
    a) Wait until a sharp corner before making a move
    b) Be decisive, and complete the manoeuvre well before the next corner
    c) Wait until the slower car makes a pit stop before overtaking

18) In poor weather, the main hazard is loss of grip. The track is at its slipperiest when:
    a) Dry
    b) Full wet
    c) Drying

19) In wet/slippery conditions, time penalties will be issued to drivers that:
    a) Are considered by marshals to be cornering too quickly for the conditions
    b) Stop for a break
    c) Make lots of overtaking manoeuvres

20) For the safety of your team and others, there is a guide speed limit in the pit lane of:
    a) 5mph
    b) 2mph
    c) 15mph

21) In the unlikely event that your vehicle should overturn, which two of these are correct?
    a) Keep your hands on the steering controls inside the bodywork
    b) Remain calm and await marshal assistance
    c) Call the team to boast about what's happened

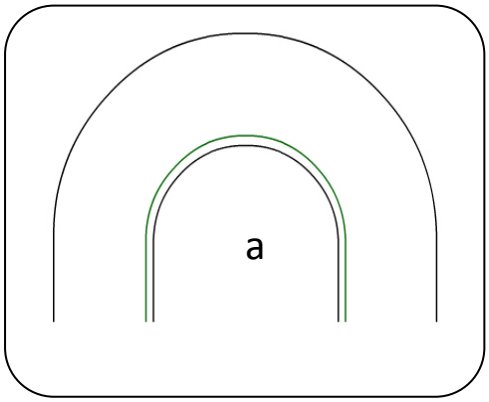
22) Smoothness, accuracy and consistency, the key components of speed lead to what?
    a) Slower lap times
    b) Greatly improved lap times
    c) Nothing

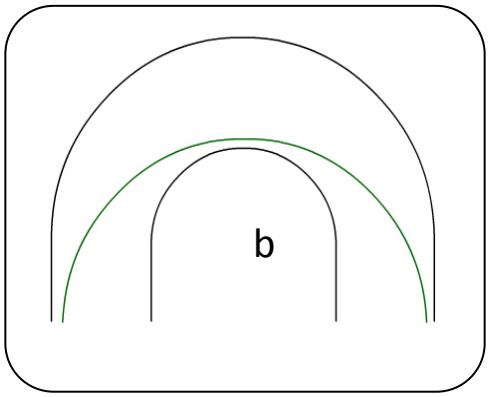
23) Which of the following is:

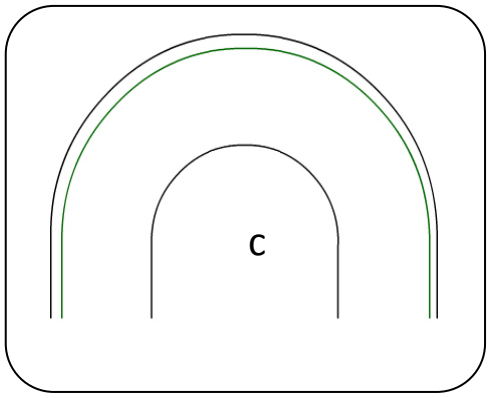
23.1) The shortest way to drive around a ‘hairpin’ corner?

23.2) The longest way to drive around a ‘hairpin’ corner?

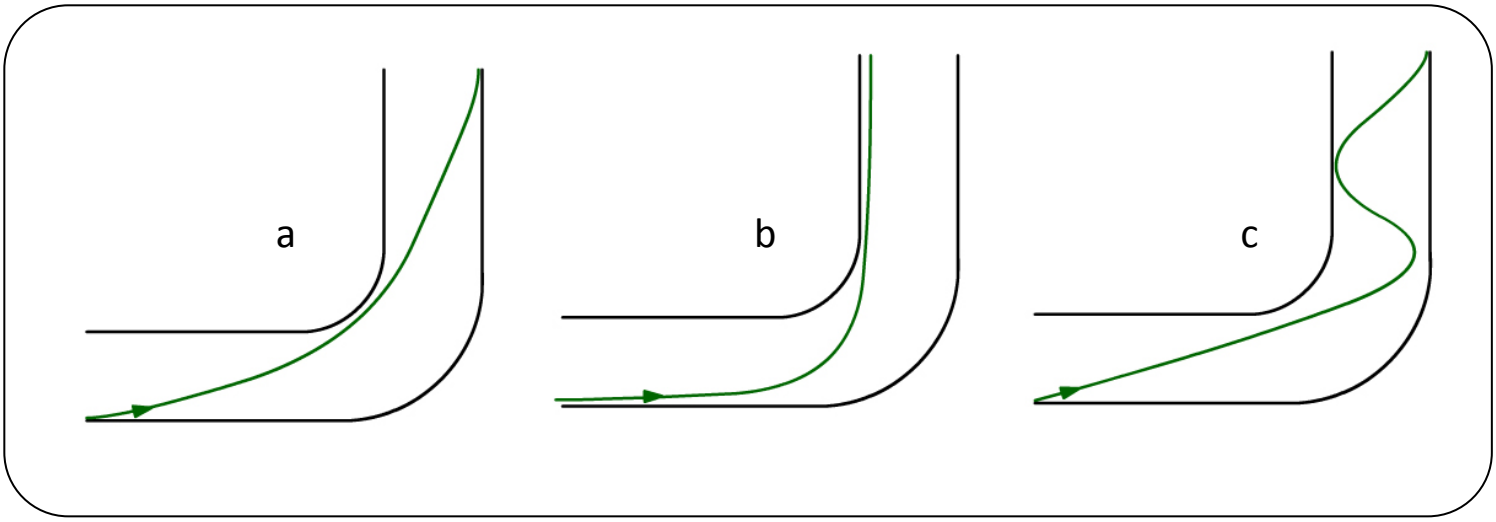
23.3) The smoothest and quickest way to drive around a ‘hairpin’ corner?



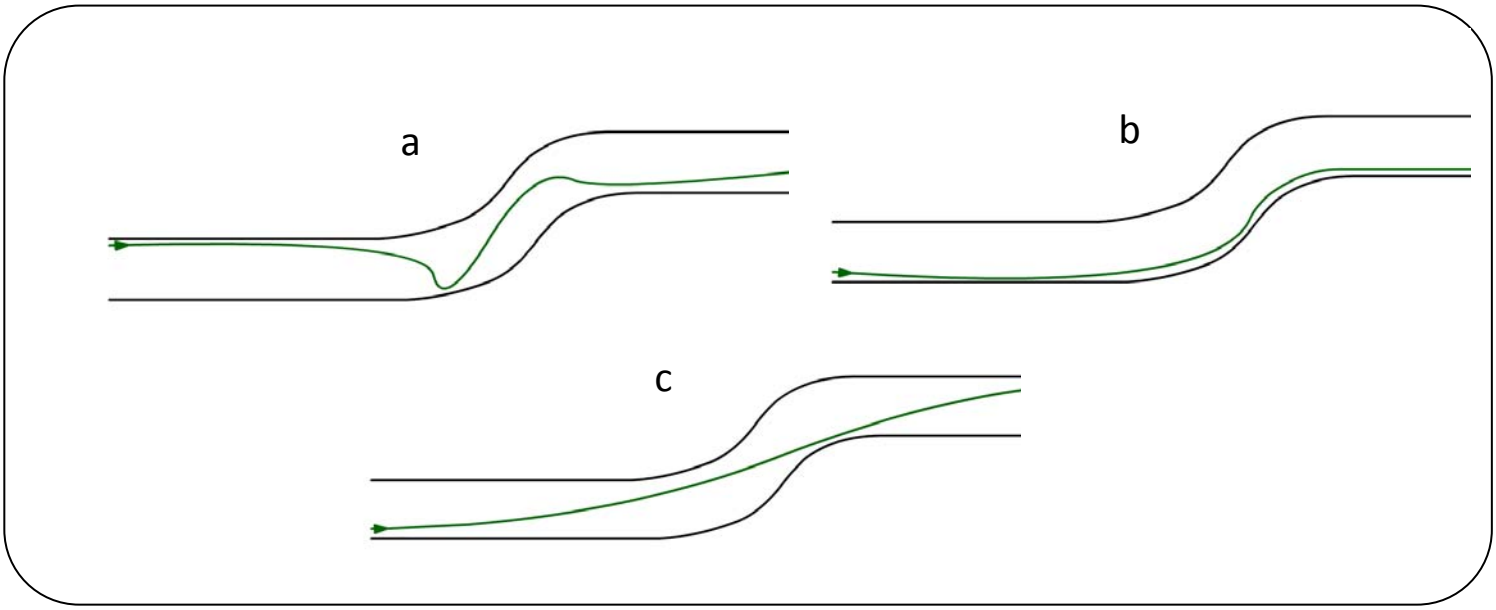




24) Which of these is the smoothest and quickest way to drive around a sharp left hand corner?



25) Which of these is the smoothest and quickest way to drive through a chicane?



ANSWERS:

Section 1:

1) b
2) b
3) a
4) b
5) c
6) b
7) a

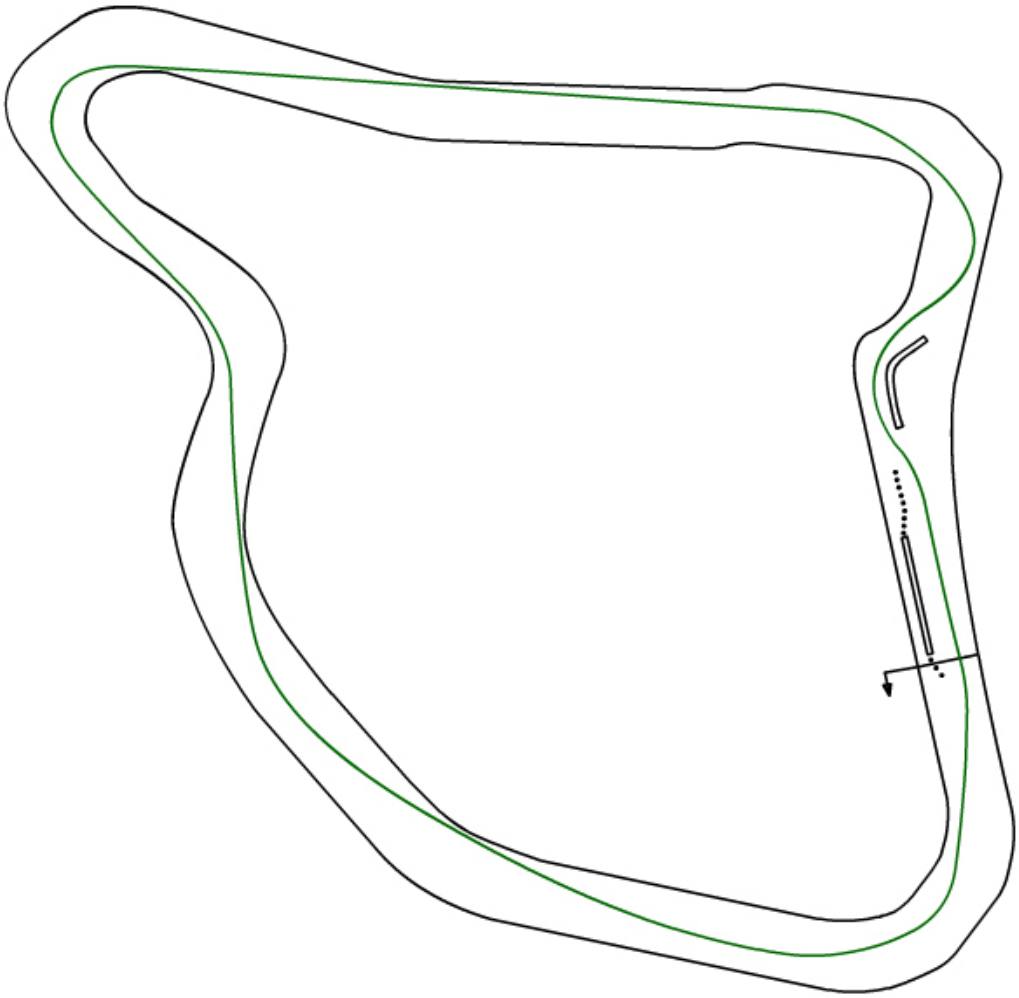
Section 2:

8) b
9) c
10) a
11) a, c, f, g, h, i
12) a – RED
    b – YELLOW
    c – BLACK
13) a
14) c, d, e

Section 3:

15) b
16) c
17) b
18) c
19) a
20) a
21) a, b
22) b
23) 23.1 – a
    23.2 – c
    23.3 – b
24) a
25) c

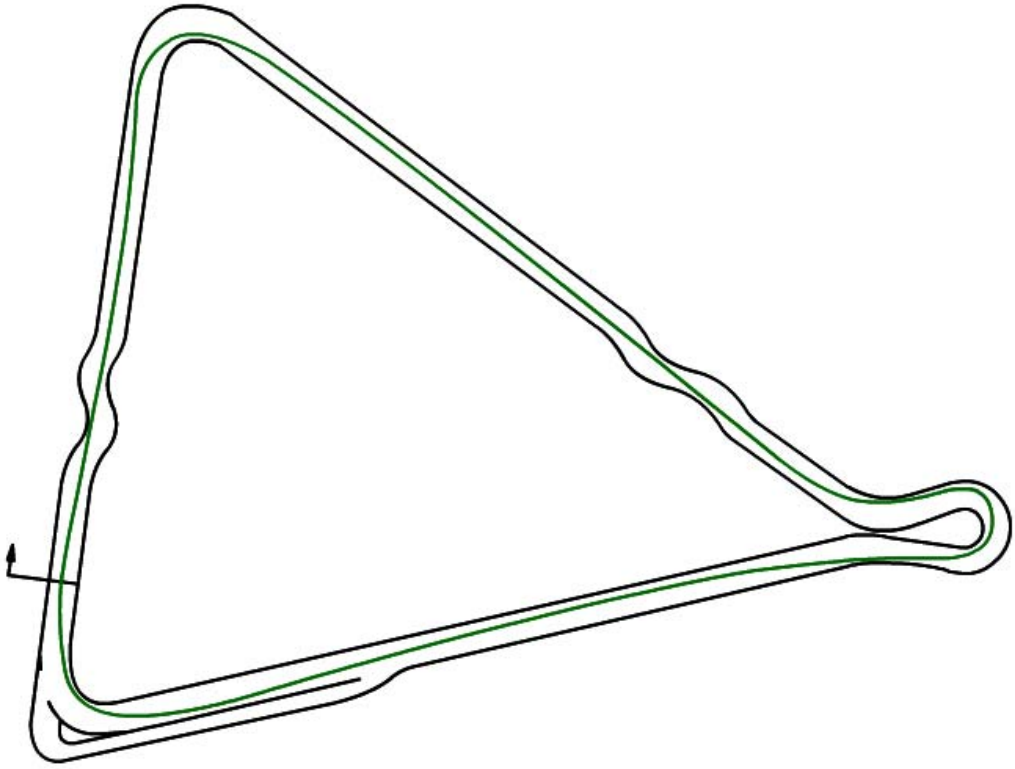
GOODWOOD MOTOR CIRCUIT



GOODWOOD MOTOR CIRCUIT

Length	2.40 miles
Lap Record (2008 on)	3m 51.855s (Sandbach High School, Zebedee F24+, October 2009)
Mileage Record (4 Hour)	124.80 miles (Electroad, Simple Trug, April 2009)
Catering	Yes
Location	Goodwood Motor Circuit, Goodwood, Chichester, West Sussex, PO18 0PH
Event Types	Goblins, Formula 24, Formula 24+

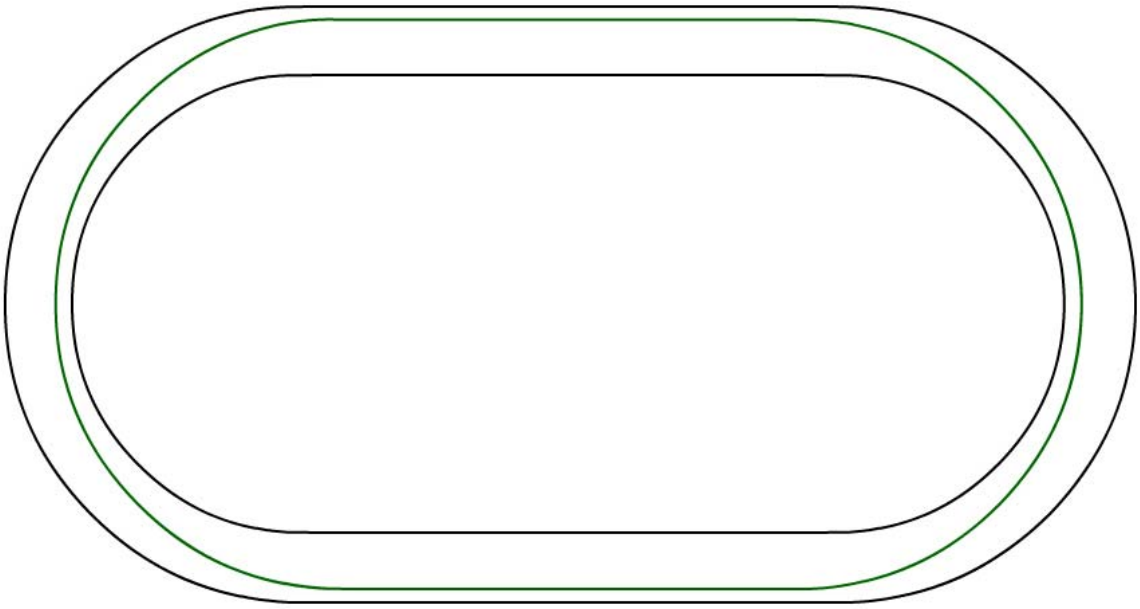
DARLEY MOOR CIRCUIT



DARLEY MOOR CIRCUIT

Length	1.50 miles
Lap Record (2008 on)	2m 36.600s (Sandbach High School, Brian, June 2008)
Mileage Record (4 Hour)	69.00 miles (St Thomas More Catholic College, STM All Stars – Transform Schs)
Catering	Occasional
Location	Darley Moor Circuit, nr Ashbourne, Derbyshire
Event Types	Goblins, Formula 24 Sprint/Test

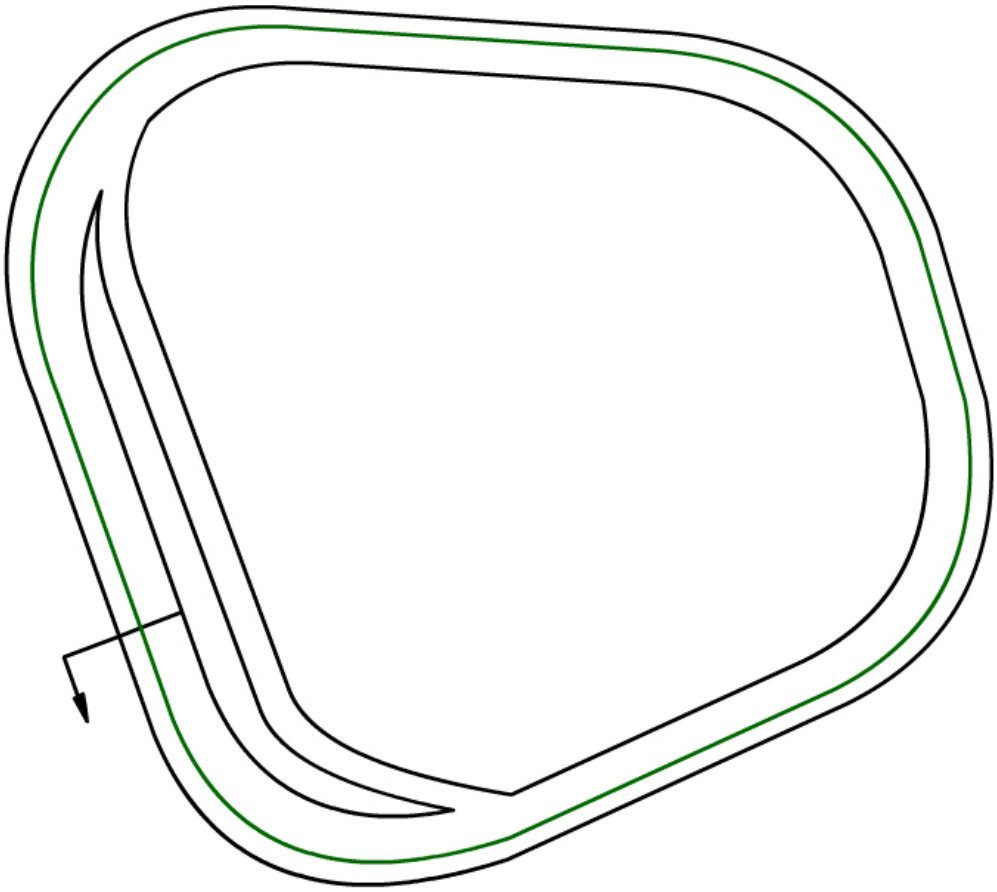
GRAMPIAN TRANSPORT MUSEUM



GRAMPIAN TRANSPORT MUSEUM

Length	0.25 miles
Lap Record (2008 on)	44.000s (Bankhead Academy, Bankhead Blazers, June 2008)
Mileage Record (4 Hour)	76.25 miles (Thurso High School, Roadrunners, June 2009)
Catering	Yes
Location	Grampian Transport Museum, Alford, Aberdeenshire, AB33 8AE
Event Types	Goblins, Formula 24

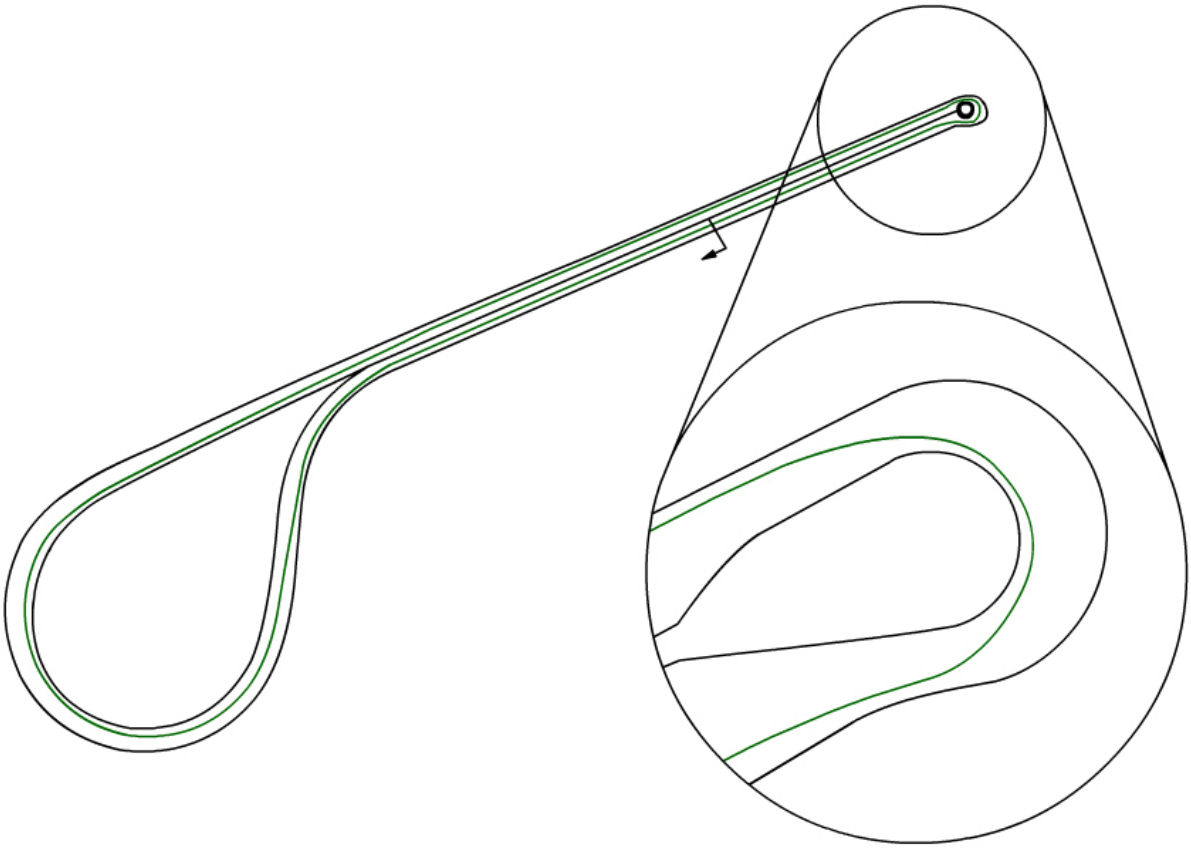
ROCKINGHAM MOTOR SPEEDWAY



ROCKINGHAM MOTOR SPEEDWAY

Length	1.47 miles
Lap Record (2008 on)	2m 12.651s (Sandbach High School, Zebedee, July 2009) F24 2m 04.046s (Sandbach High School, Zebedee, July 2009) F24+
Mileage Record (4 Hour)	144.06 miles (Sandbach High School, Zebedee, July 2009)
Catering	Yes
Location	Rockingham, Mitchell Road, Corby, Northamptonshire, NN17 5AF
Event Types	Goblins, Formula 24, Formula 24+

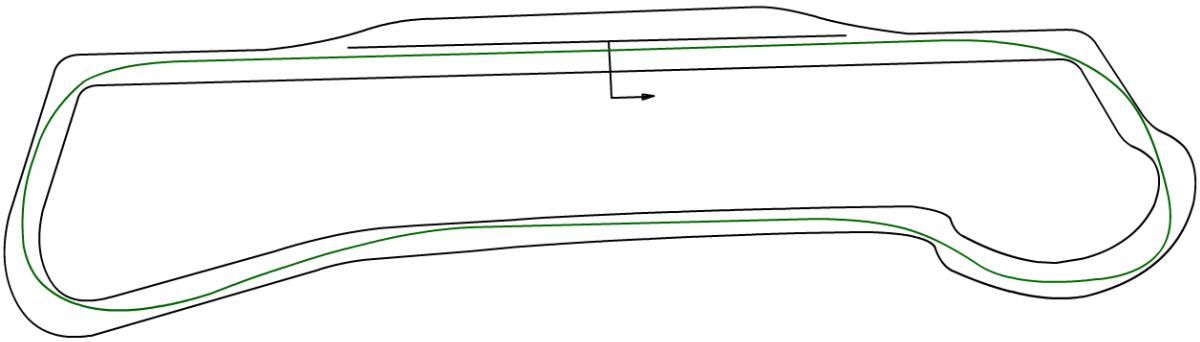
FORD DUNTON TECHNICAL CENTRE



FORD DUNTON TECHNICAL CENTRE

Length	1.10 miles
Lap Record (2008 on)	2m 29.202s (Chatham House Grammar School, Aluuuuuminium, July 2009)
Mileage Record (4 Hour)	78.1 miles (Business Academy Bexley, Jewson, July 2008)
Catering	No
Location	Ford Dunton Technical Centre, Basildon, Essex, SS15 6EE
Event Types	Formula 24

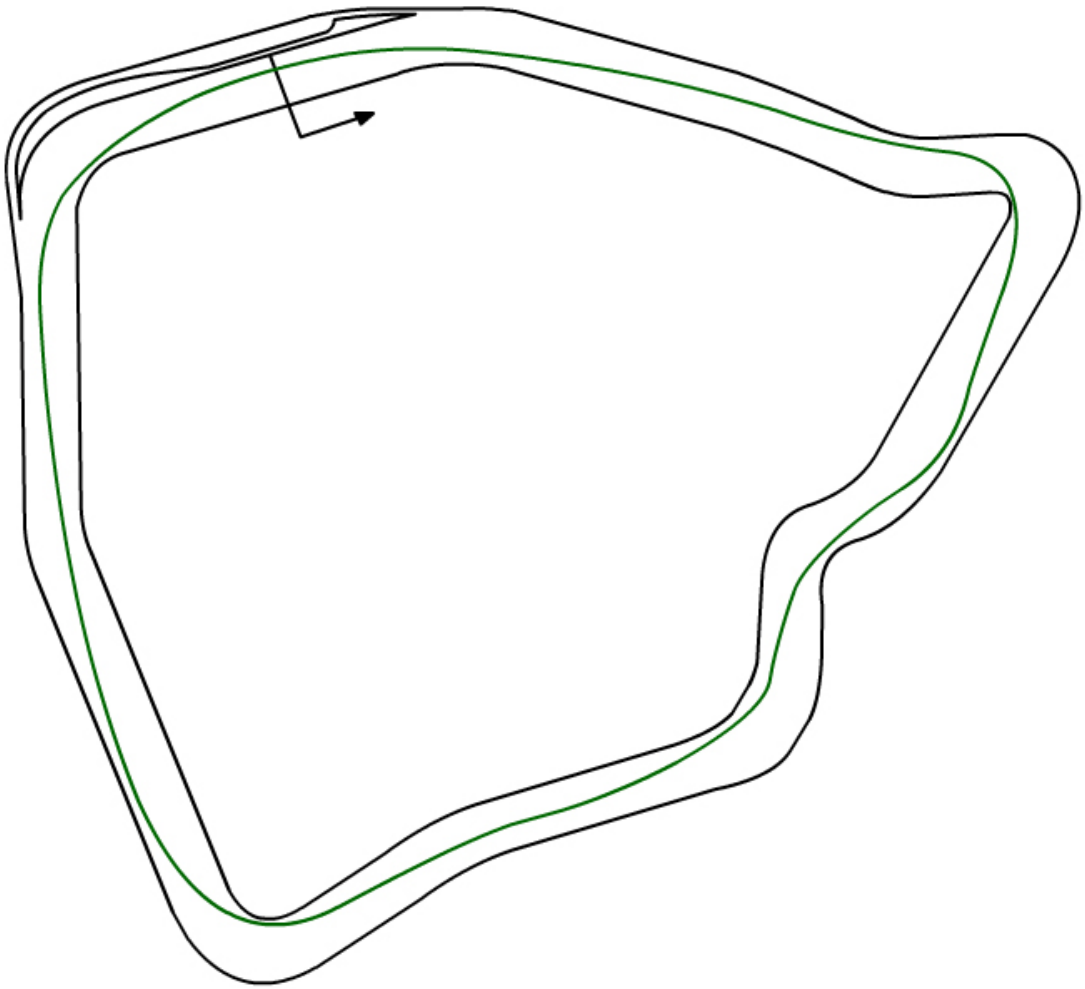
CROFT CIRCUIT



CROFT CIRCUIT

Length	1.15 miles
Lap Record (2008 on)	2m 04.185s (Sandbach High School, Zebedee, July 2009)
Mileage Record (4 Hour)	101.2 miles (Sandbach High School, Brian, July 2008)
Catering	Yes
Location	Croft Circuit, Croft on Tees, North Yorkshire, DL2 2PN
Event Types	Goblins, Formula 24, Formula 24+

CASTLE COMBE CIRCUIT



CASTLE COMBE CIRCUIT

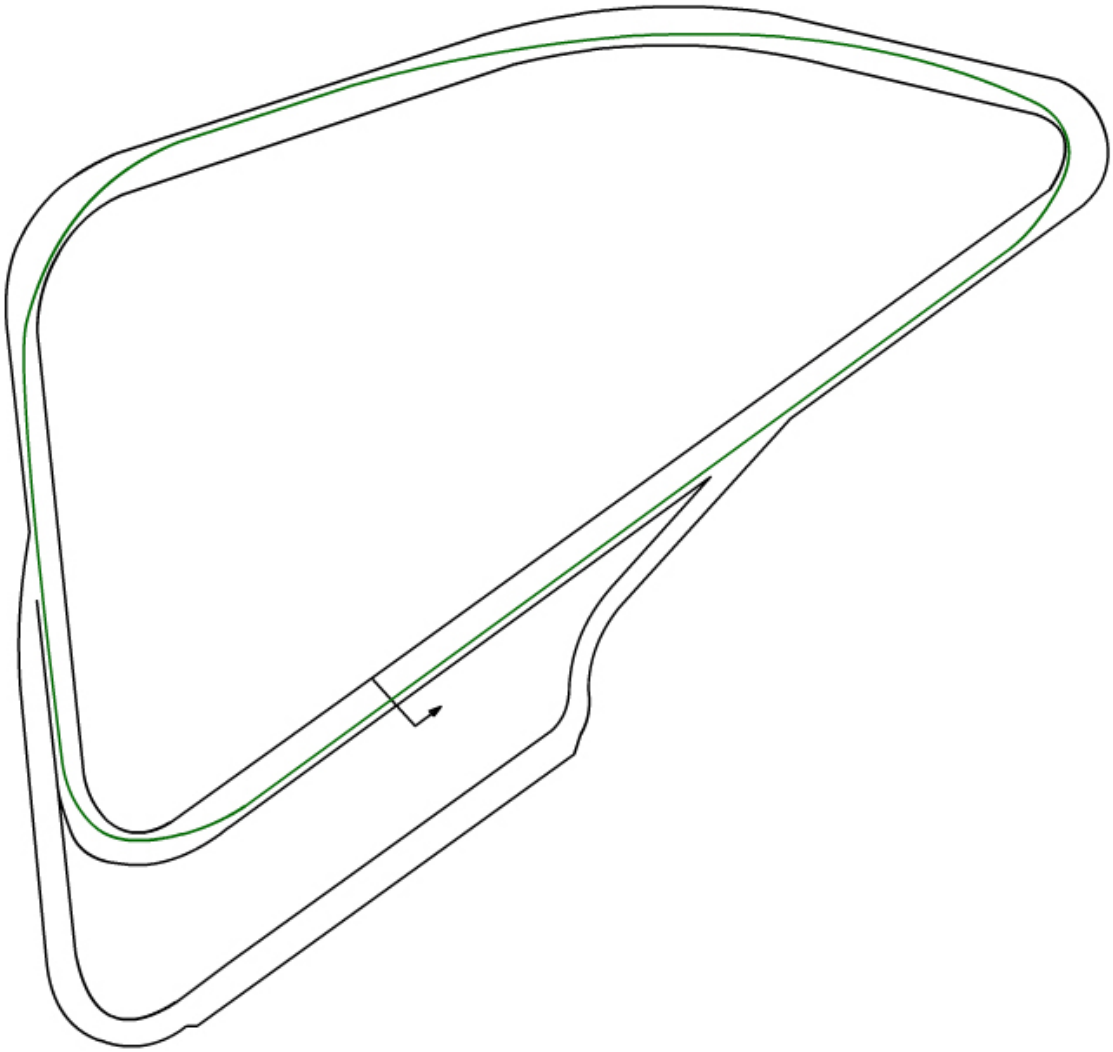
Length	1.85 miles
Lap Record (2008 on)	2m 51.066s (Sandbach High School, Zebedee (F24+), September 2009)
Mileage Record (4 Hour)	116.55 miles (Chipping Sodbury School, Rotary Racer, September 2009)
Catering	Yes
Location	Castle Combe Circuit, Chippenham, Wiltshire, SN14 7EY
Event Types	Formula 24, Formula 24+

HAYNES INTERNATIONAL MOTOR MUSEUM

HAYNES INTERNATIONAL MOTOR MUSEUM

Length	0.33 miles
Lap Record (2008 on)	45.626s (West Somerset Community College, Blue Peter, July 2008)
Mileage Record (4 Hour)	89.43 miles (Minehead Middle School, Grinpower, July 2008)
Catering	Yes
Location	Haynes International Motor Museum, Sparkford, Somerset, BA22 7LH
Event Types	Formula 24

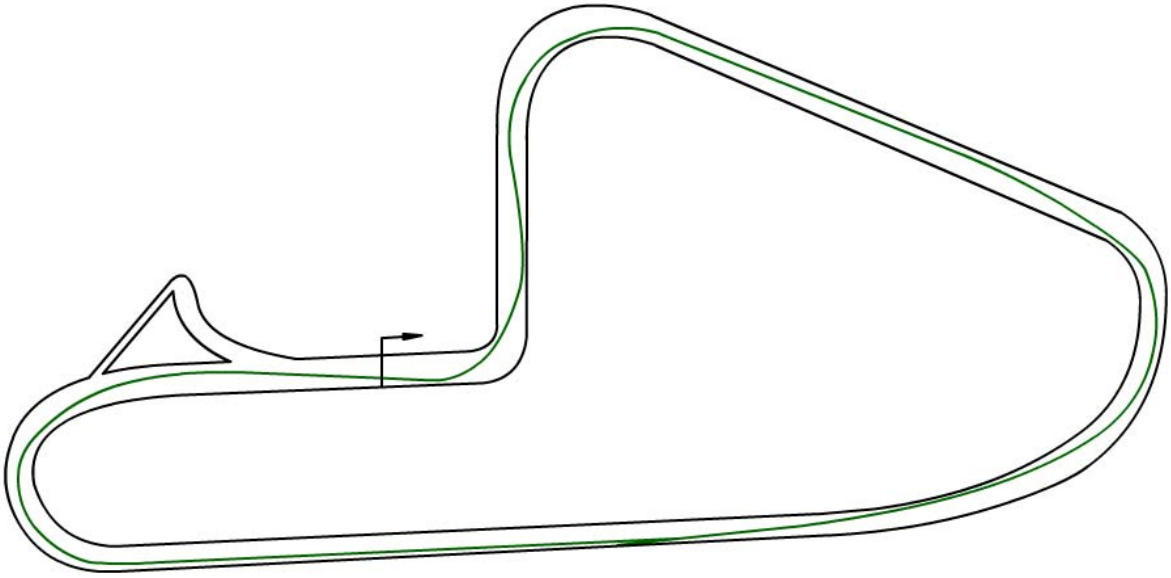
BEDFORD AUTODROME



BEDFORD AUTODROME

Length	0.56 miles
Lap Record (2008 on)	1m 02.839s (Team Bentley, Continental DC, F24+)
Mileage Record (4 Hour)	98.00 miles (Chatham House Grammar School, Aluuuuuminium, Sep 2008)
Catering	Yes
Location	Bedford Autodrome, Thurleigh Airfield Business Park, Bedfordshire, MK44 2YP
Event Types	Formula 24, Formula 24+

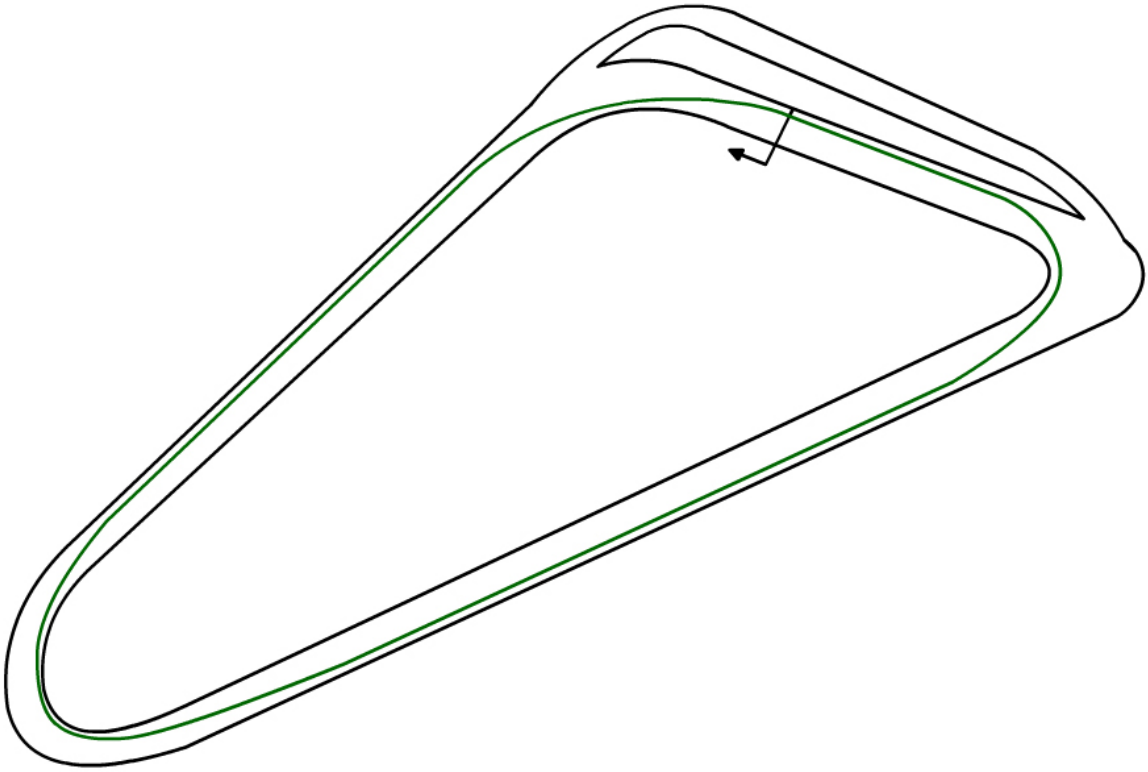
AINTREE MOTOR CIRCUIT



AINTREE MOTOR CIRCUIT

Length	1.5 miles
Lap Record (2008 on)	2m 33.476s (Sandbach High School, Zebedee, September 2009, F24+)
Mileage Record (4 Hour)	103.50 miles (Sandbach High School, Zebedee, September 2008)
Catering	Yes
Location	Aintree Motor Circuit, Melling Road, Aintree, L9 5AS
Event Types	Formula 24, Formula 24+

DUNSFOLD PARK



DUNSFOLD PARK

Length	0.78 miles
Lap Record (2008 on)	1m 27.534s (Trinity School, TSR-4, September 2008)
Mileage Record (4 Hour)	100.62miles (Chipping Sodbury School, Rotary Racer, September 2009)
Catering	Yes
Location	Dunsfold Park, Cranleigh, Surrey, GU6 8TB
Event Types	Formula 24, Formula 24+