

# IAgrE Young Engineers Vehicle Performance Competition – New Rules for 2008



IAgrE

October 2007

## To All Land Based Colleges

Dear Colleague,

Barton Road, Silsoe, Bedford  
MK45 4FH, United Kingdom  
Tel: 01525 861096  
Fax: 01525 861660  
Email: [secretary@iagre.org](mailto:secretary@iagre.org)  
[www.iagre.org](http://www.iagre.org)

IAgrE Young Engineers Competition 2008:  
May 15<sup>th</sup> at the JCB HQ in Rocester.

**Autoguide Equipment** has again kindly agreed to sponsor the IAgrE Young Engineers Competition with support from Swedish Steel and Bosch-Rexroth.

Part of the Institution of Agricultural Engineers' (IAgrE) continuing "*Raising the Profile of the Industry Campaign*" the competition is designed to raise the awareness among young engineers as to the width and vibrancy of our Industry.

The competition is not restricted to engineering departments; indeed all disciplines within the land based colleges will be welcomed. We also welcome entries from Sixth Form Colleges.

This year we return to JCB who have again kindly agreed to host this event. A factory tour of the JCB Excavator plant will form part of the day.

As usual, there will be a cash prize fund and other prizes. There will be two classes, one for those meeting the design criteria issued (Class 1) and one for those outside those criteria (Class 2).

A buffet lunch will also be provided.

Details of the competition are included below and a drawing of the test ramp is attached as a separate file (rampdwg.pdf). Please note these are slightly modified rules from last year. The rule changes relate to the battery (now 12 volt) and the wheels.

For further details, or if you have any queries, please contact the undersigned.

Yours faithfully

Christopher R Whetnall  
Chief Executive

enc: ramp.pdf

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## Object

Given a set of standard wheels, a battery and maximum dimensions, create a remote or radio controlled vehicle to produce the best performance on a standard test track. The track is made from 2 sheets of pegboard arranged to give a quarter circle (like a skateboard ramp) 1.55m radius. (See attached file rampdwg.pdf)

## Equipment

A kit of wheels and a battery will be supplied FOC to registered groups, from any discipline, together with a drawing of the test track which is made from 2 sheets of pegboard and a wooden frame.

## Details of vehicle

- 1.) It must fit inside a notional box 200 mm wide x 320 mm long. This is obligatory.
- 2.) Up to 4 of the supplied wheels must be used – any modified wheels will be replaced with standard ones for the competition. It must be possible to replace all of the tyres (either by changing wheels or tyres) in 2 minutes. All tractive force must be transmitted through the tyres. **N.B. This year the wheels are coming from a different supplier and the tread may be different.**
- 3.) All power (for traction and/or any actuators) must be derived from the battery supplied FOC. **N.B. the battery this year will be 12 volt.** The battery will be similar to a NP7-12 Yuasa 12v 7Ah Sealed Lead-Acid battery with 0.187" fast-on terminals. Battery dimensions are 151 mm long x 65 mm wide x 97.5 mm (100 mm including terminals) high (Weight 2.8kg). Additional batteries may be purchased – but only one used per vehicle. Any devices to increase traction (ground effect modifiers etc) shall derive their power from the same onboard battery.
- 4.) All entries will undergo *scrutineering*. Entries not meeting para 1.), 2) and 3.) above, or deemed by the organisers to constitute a danger to others or the test track, may be banned prior to entry.

## Details of test track

This should conform to the attached drawing – 2 diagonal lines from the lower to upper corners will be drawn before forming the pegboard into shape.

## Details of test

The vehicle will be driven above each diagonal line as far as possible. A laser beam will be used to determine when a vehicle has passed a pre-determined height. The laser beam will be set at arbitrary heights by the judges. Competitors can choose to compete at each height. Three failures will result in elimination. A maximum of 7 attempts in each direction will be allowed but this may be reduced if the vehicle takes more than 30 seconds to complete the run.

## Classes

To accommodate entrepreneurial designs, there will be two classes:

- Class 1 – for those entries meeting the design criteria
- Class 2 – for those not meeting the design criteria.

## Awards

The prize fund will be distributed at the judge's discretion.

## Kit availability

Register with the IAgrE secretariat at the address below who will arrange the dispatch of kits. These will be on a maximum lead time of 7 days.

## **IAgrE**

Barton Road

Silsoe

Bedford

MK45 4FH

email: [yecompetition@iagre.org](mailto:yecompetition@iagre.org)

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