



ALAM Newsletter

Spring 2010

2010 AGM

As the conference was held in spring, there will be a 2-day event at Reaseheath, including the AGM meeting. Information and booking details are on 3 of this newsletter.

2010 Conference

The 2010 ALAM Annual Conference was a tour of Ireland, organised by Gwynfor Williams. It was a great week, and the first reports are in this newsletter.

One-Day events

We are always open to ideas and suggestions from members for future one-day updates, and names of useful contacts would be most welcome. Please contact the ALAM secretary, Graham Higginson at Reaseheath College.

Parts Offer

John Gough has a range of warranty return items sourced from JCB, which are available for colleges to use for teaching. For full info about what is available, contact John by email at gough.j@btinternet.com - note this is a new email address. Phone - 01630 685 942 - evenings 7 to 10pm, please.

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ALAM Committee 2009-10

Updates are highlighted in **bold** text.

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ALAM AGM 2010

AGM at Reaseheath College

19th & 20th April 2010

The 50th Annual General Meeting of Association of Lecturers in Agricultural Machinery will be held at Reaseheath College, 19th – 20th July.



The Programme is given below.

Please note that this is subject to change.

	Monday 19th July	Tuesday 20th July
0800		Breakfast
0900		Depart to JCB Cab Systems
1000	Registration & Coffee	JCB Cab Systems
1100	Presentation by HSE	
1200		Depart to Reaseheath
1300	Lunch	Return to Reaseheath
1400	Depart for Harper Adams	
1500	Harper Adams Dairy Unit and Engineering Dept.	
1600		
1700	Depart to Reaseheath	
1800	Return to Reaseheath	
1900	AGM & Dinner	

To book please forward details to Graham Higginson grahamh@reaseheath.ac.uk or:

Reaseheath College
Nantwich
Cheshire
CW5 6DF

Cost will be £100 for members, £120 for non-members.

ALAM ANNUAL CONFERENCE 2010

Wrafter Wood Products Ltd.

Kilbeggan, Co Meath.

Friday 9th April 2010

Peter Wrafter owns and operates a modern wood turning business set on a new industrial estate that he has developed with modern buildings and services. Using sophisticated computer controlled automatic lathes the business produces a wide range of shaped timber work for the housing industry. Of particular interest was a lathe that can produce complicated shapes for furniture legs and banister supports, very large numbers of items per hour.

In a large temperature controlled warehouse Peter kept his superb collection of steam engines and vintage tractors. He is a very committed steam enthusiast and his collection has been restored to "like new" standard and are exhibited in full steam at major rallies in Eire and the UK.

Ireland is the home to a great many steam engines today, but has always had a tradition of keeping these machines in a high standard of repair long after they were "retired". Traditionally, Irish buyers purchased a "set" of equipment from one manufacturer when possible, e.g. Ransomes Engine and Threshing Drum as a pair.

At the peak of the "Steam era" it is believed that there were more steam engines in Ireland than mainland UK.

Showman's engine "British Hero"

Built in 1908 by Richard Garrett & Sons Ltd. at Leiston in Suffolk, and still carrying the original number plate AD 1981.

At 6hp, she is quite a rare model as most engines of this era were larger and more powerful, but produces up to 350 amps from the 110-volt generator.

Her decorated wooden canopy carries the details of her original purchaser, "Shepherd Electrical Amusements on Tour", and is in very good condition, complimenting the traditional "Garrett Green" painted body with polished brass bands.



Traction engine 1.

The first of his two traction engines was built in 1930, one of the last engines to leave the Ransomes, Simms & Jefferies factory at Ipswich, Suffolk, and carrying the original Suffolk registered number plate of VX 7317.

Producing 6hp, she is a compound engine (two cylinders, high and low pressure).

Weighing in at 9 3/4 tons when empty, she has recently had a new boiler and tubes, and is back to her original performance and output when in full steam



Traction engine 2.

This is an earlier Ransomes, Simms & Jefferies model, from Ipswich, built in 1919, and produces 7hp.

Paul Wrafter picked her up at a Cheffins sale in incomplete condition, when the Saunders Collection was sold, and he endeavoured to obtain replacements for the missing items.

A chance encounter at a steam rally led him to the missing parts. It appeared that under earlier ownership, there had been a falling out between the joint owners, and one of them removed some essential parts (Water pump, governors and a few more), before it was sold by the other party. The chance encounter was with the person who knew the whereabouts of the missing parts.

This led to tracing the owner to Mansfield in Notts, who Paul then approached. Much to Paul's amazement, he insisted that he gave Paul the parts, free of charge, as he said that now that the engine was in new ownership, and in the hands of a dedicated enthusiast, it was only right that they should be restored to the engine. This enabled the restoration to be complete.



Portable engine.

This is yet another Ransomes, Simms & Jefferies engine in superb condition and working order, and at 10hp, is a powerful machine of its type. For many years it was used by Galway County Council to drive a stone crusher.

Unusually, the flywheel is mounted on the right hand side of the engine, not the normal left, as is usual with single flywheel engines. Markings in the left hand side of the drive shaft seem to indicate that she either had two wheels, or that the existing one was moved to the other side.



Tractor - McCormick International B 614, diesel.

This is a very unusual model, one of less than 200 made, as it is fitted with a Roadless 4WD conversion.



Foden Steam Lorry scale working model.

This belongs to a friend of Paul's who asked him to garage it, and has not come back since!

It is in good condition and works well when fired up.



All in all, this was a fantastic collection, lovingly restored to full working condition, and ALAM members were honoured and thrilled to have an opportunity to examine all the items and have Paul Wrafter explain their background and answer the many questions posed.

Chris Keeble

ALAM ANNUAL CONFERENCE 2009

B.A. Systems, Barrow

Tuesday 14th July 2009.

It was with very mixed feelings that I entered the B.A Systems yard at Barrow, for it was only forty or so years ago that I was standing outside those very gates with a wife and two young children along with thousands of others protesting about the building of subs for the Trident missiles.

As I sat in what used to be the dining Room for James Ramsden and his three partners who started the company back in 1872 listening to Brian Benn, the Planning Manager for the yard talking about his interesting experiences during the past 32 years, I wondered what had changed during that period of time, we certainly are not the world power we thought we were in them days; and what about the nuclear threat which seemed so ever present in the sixties, had that diminished, and did I still think like the Beatles in those heady days that 'Love is all you need'.. One thing was certain, I had changed during that time and come to realise that we in this country had sold during the same period every manufacturing plant that was of any worth to foreign interest. However gladly here in B.A systems was a top class British Company which had been retained, and I suppose if one was cynical, this was only due to its military importance and not because of its cutting edge technology.

Brian started the day off well by saying that no question was too silly except those asked in the bus going home, so the stage was set and questions flowed during the entire visit. Brian said that it took 15 years from design concept to actually building a sub, Think of it, one third of ones working life if the Tories form the next government gone to designing and building a single sub and one of the biggest problems was that during that period the rate of technological advancement was such that it could render the whole concept of a particular item of military equipment worthless, necessitating big and complex changes in the sub's structure. The plant currently employs 4365 and along with Kimberly Clarke the paper tissue makers are the major employers in this neck of the woods.

The steel plate used in the construction of the hull came from Scunthorpe as well as from France and the yard had a preference for the latter as its elongation properties was better; this is of critical importance when joining thick plate by welding. Plates were heated to 70 degrees Centigrade for welding and were kept at this temperature with limpet heaters and subsequently cooled at a controlled rate with every weld tested ultrasonically or by X ray. On double veed joints welders worked on both side simultaneously to limit distortion, talking of which, over a length of 90m they managed to keep to a tolerance of plus or minus 4mm! Anything above this would cause huge problems, and for a person who has witnessed at first hand 30ft farm trailers ending up like bananas after a few welds, that is an incredible piece of controlled engineering.

In the afternoon Joseph Sides talked about the training received by welders at the plant. All are trained to ASME 9 standard and we witnessed some excellent examples of A1 & A3 welds made by a year 1 student. One aspect of their training was pipe welding in confined spaces using a mirror so as to see round the back of a joint; personally I find reversing a trailer in an open yard using a mirror difficult enough.

So what were the lasting impressions from this excellent visit? Well for me they were:-

- The size of a sub when on dry land compare to the insignificant blob that it looks in water.
- The degree of modularisation of the hull sections and systems inside which is now achievable using three dimensional CAD.
- The complexity of the whole structure and how crammed the space is inside the vessel. If some part was inadvertently left out then the only way of getting it in would be to cut a hole in the outside plate, and that's not easy when its 50 mm thick coated with an equally thick layer of rubber.
- The standard of positional welds achieved by students in their first year of training and the pride in doing an excellent job shared by students and tutors alike.
- The very large computerised pipe store and bending machine capable of working direct from the drawing.
- The transporting of a 7,500 Tonnes vessel and the gradual lowering on an even keel into the water.

If you are interested in learning more about the most complex engineering project in the U.K. and how its million parts are put together, the Rolls Royce reactor and Thales sonar equipment, then why not log on to The Institute of Engineering Technology 'First in its class' or www.theiet.org/magazine. Do not select 'search all issues' just Astute class submarines 2009

Emlyn P. Thomas

ALAM ANNUAL CONFERENCE 2010

McHale Engineering

6th April 2010

The ALAM group was met by Ger O'Shea (Jerry)

Ger has worked for McHale for 11 years, including 8 years based in the UK ("I only planned to be there for six weeks..."). He is now based in the Ballinrobe factory, in charge of field service and technical training for McHale products across all markets.



History

The McHale family were first involved in agricultural engineering back in the 1970s when they had an agricultural machinery dealership, which is still running to this day. The dealership has franchises with Massey Ferguson, Fendt, Manitou, Krone, Kuhn, Hi-Spec, Amazone, JF, Quicke, Fleming, Peecon and of course McHale, selling around 70-80 tractors and 20-30 Fusions each year.

McHale started machinery manufacturing in the early 1980s, making silage block cutters and slurry pumps. In the late 80s, bale wrappers were added to the range, quickly becoming a major part of the business.

In 2002, in response to the competition, McHale introduced the Fusion combined baler and wrapper, which meant designing a new baler from scratch.

Also in 2002, McHale was sourcing complete pickup reels and choppers from Hungary, but when this supply started to look uncertain, McHale bought the plant in Hungary to ensure its supply. This plant has now expanded to produce belt-type round balers, which are a strong seller in certain export markets.

McHale now exports to 44 countries around the world, with strong sales in South Africa, Australia and New Zealand, where the opposite seasons fit in with those in the northern hemisphere to give year-round work.

In the UK, McHale has a team of 2 men for sales, and 2 for service, and provides a 24-hour service from May through to September each year.

The company is still family owned, and over the past 10 years the company has grown 30% each year.

Fusion



The original Fusion was launched in 2002, and significantly updated to the Fusion 2 in 2007.

The Fusion 2 has a fixed diameter roller chamber with a vertical wrapper behind. Because the complete baler and wrapper were designed as one, many features were incorporated to keep the crop flow simple and overall machine dimensions compact. Notable features include:

- Single axle with large wheels - less scrubbing of tyres in the field.
- Vertical wrapper - wrapper close to bale chamber meaning compact machine size, and bale does not travel sideways.

- Patented bale transfer system - lower rollers lift, giving compact machine dimensions and simple design.
- Suspension rollers on wrapper ring - smooth operation and easy realignment if ring is dislodged.
- Drop floor unblocking - less downtime.
- Film break sensor - informs operator, but also automatically slows bale rotation during wrapping to ensure fully wrapped bale from one remaining reel.
- Auto grease system using standard size cartridges - easy maintenance and best possible lube for bearings.
- Auto chain oiling - reduced maintenance time and long chain life.
- Integral load-sensing hydraulics - minimises power demand from hydraulic system, as most of the time the baler needs no oil flow, only during bale transfer, wrapping and ejecting.

The Fusion is capable of 50 to 60 bales per hour, and tractor power requirement varies from 100 to 150hp, depending on size of swath, slope of ground, and whether or not the crop is chopped by the baler

Ger told us he knew of a contractor in Scotland who has baled 25,000 bales in one season with one operator, one tractor and a Fusion, and another in Ireland with a figure of 44,000 bales in one season!! To prove the long life capability of the machine, he also quoted a machine which has completed 124,000 bales so far, and is still with it's original owner.

Production Facility

The production facility was a modern, clean and relatively quiet area, using modern multi-task CNC machines.

Highlights included:

- Plasma cutters - used occasionally for cutting thicker plates, such as loader brackets.
- Laser cutters - 3 units, providing clean, fast, flexible cutting of steel plate.
- Folding units - with automatic adjusted stops to ensure correct plate positioning over a sequence of different folds.
- Pipe bending units, including units capable of bending 100mm box section steel.
- Robot welding stations. Some for complete Fusion chassis welding, others for welding specific bushes.
- A closely-guarded (So close we couldn't see it) McHale designed and built unit for pressing crimped rollers.



All in all, this proved to be another enlightening visit, with Ger's commentary and insight making very this visit both very interesting and informative. It's always great to see a company doing so well through a combination of good design and professional service.

David Heminsley

ALAM ANNUAL CONFERENCE 2009

Educational Developments!

27 July 2009

And so our first session of the 2009 annual conference commenced with our conference convenor Jonty Rostron introducing the session to a packed room with the message that what we were to experience was not exactly what had originally been devised!

The reason for this slight change of plan was that Mr. Arthur Boulton, City & Guilds External Verifier, was accompanied by two other wise men namely Mr John Palmer, Training Manager for Claas UK, ex Duchy College, and Mr. Richard Trevarthan, ex Bishop Burton College, (I am still not convinced that he has really retired!) The reason that these two gentlemen had joined the happy throng was that they were also intimately involved in both the identification and development of what was required to bring our agricultural and associated industry training and qualification structure to a point where it was up to date, fit for purpose and met the needs of both industry and customer.

Mr John Palmer was first up and gave some background about industry requirements and the need for high quality technically competent service personnel which need to be appropriately recognised and rewarded. The Landbased Technicians Accreditation Scheme, LTA, has been devised and established to raise the profile of service staff and recognise their technical competence. There are four grades of accreditation available which are nationally recognised and should reflect an appropriate level of remuneration. The manufacturers need the colleges to maintain their education and training role and act as independent assessment centres for the LTA scheme.

The existing NVQ qualifications, which are often used as a route into the industry, have now been in place for a good number of years and have not kept up to date with the technical developments which have been taking place. Consequently it is now imperative that a new range of standards are implemented to reflect what is required by industry and the marketplace as a whole. It has to be borne in mind that the standards need to cover all aspects of landbased engineering and encompass the technical developments which are incorporated in the machinery and equipment now in use.

Mr Richard Trevarthan then gave us an insight into the developments which have already been taking place in preparation for the introduction of the new qualification. The qualification is being renamed as "Landbased Engineering Operations"

The make up and content of the existing qualifications have been carefully considered and additional material has been added to address the interim technical developments.

The content has been divided into units which are each given a recognisable engineering title.

Each unit is allocated with credits, each credit representing 10 "hours of learning". The number of credits allocated to each unit will give an indication of the quantity or complexity of content.

Units are graded at Level 2 or Level 3. Some of the units will be compulsory and others optional.

These units are apparently on display on the Q.C.F. website.

Students will in future be issued with one unique student identification number which will be valid for life with all the examining bodies!

The existing C & G NVQ 4025 qualification is to be phased out following the 2009 enrolment in December.

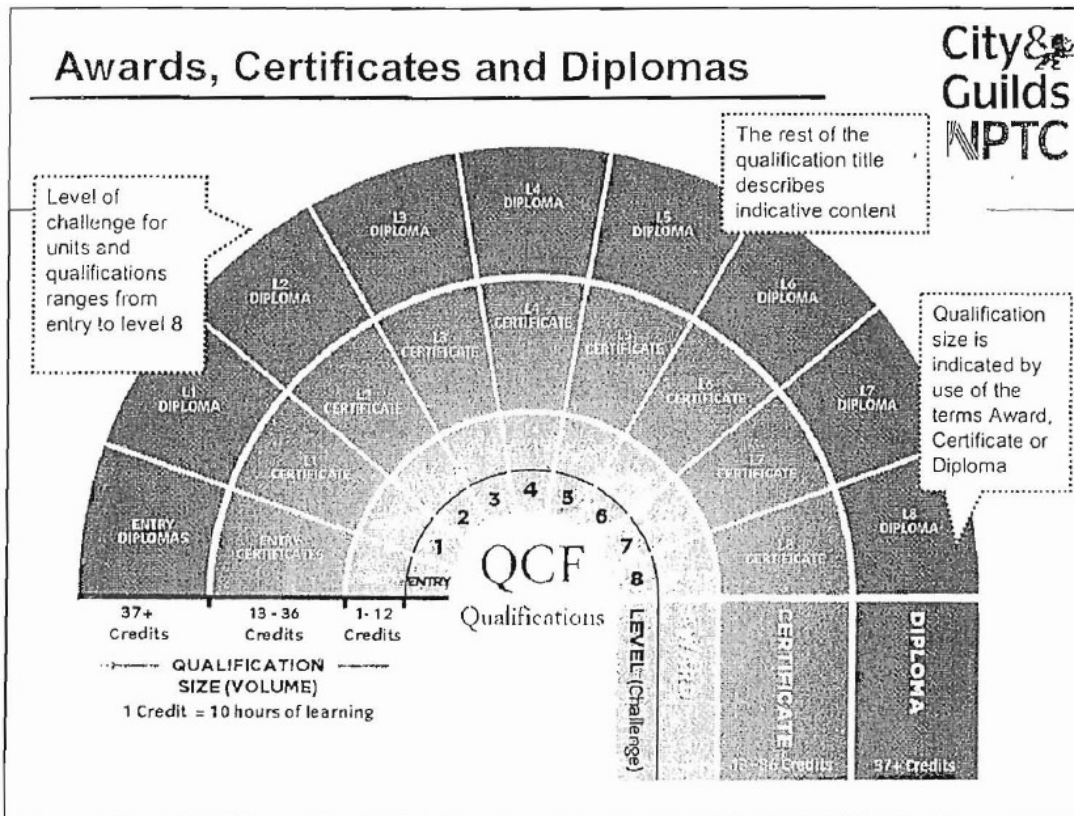
The new Landbased Engineering Operations qualification is due to be in place for summer 2010.

An appeal was made for volunteers to come forward to write the qualification around the units which have already been drawn up. This task is unfortunately unpaid.

The lead time for bringing this qualification to operational state is now very short.

It was estimated that the new qualification will require more teaching input due to the range and quantity of its content and that more modern machinery and equipment will also be necessary. It is also important that colleges try to secure LTA Assessment Centre status, this may enable them to obtain manufacturers equipment and support. Lantra will also be offering LTA assessments.

Mr Arthur Boulton then introduced us to the New Credit Framework which is due to be ready for September 2010. You will remember mention of credits earlier. The centre of the chart below shows that there are 8 levels + Entry, each level being divided up into three sizes, Award, Certificate and Diploma. The number of credits allocated to each reflects the amount of work to be covered.



Colleges currently delivering the old qualifications should be able to fast track approval for the new equivalent qualifications. The External Verifier will make recommendations as appropriate. Applications are made to the local NPTC centre office.

College assessors with D or A units may have to undergo further training.

Students and colleges still have a choice of qualification provider eg BTEC, OCN, C&G , there will be a central archive bank of units.

Units can be selected from different awarding bodies in order to build up sufficient credits to make up the level of qualification. There is also no time constraint!

To those of us old enough to remember the introduction of the NVQ qualification you may be allowed a wry smile having made your way through all this!

Sounds fascinating.

At the end of this educational marathon Paul Wilson offered a vote of thanks to our guests for their efforts and sense of humour in delivering what were a number of difficult messages to a shell shocked audience.

Following this session Mr Chris Whetnall from the I AG E gave a short presentation encouraging recruitment of young people to the Institution. He too was concerned about education and was lobbying for improvements.

J. Gough

DRAFT Land-based Engineering Operations

Unit number	Unit Title	Level	QCF'd (y/n)	Credits	GLH	Progress
LEO 1	Health and Safety	2				
LEO 1	Health and Safety	3				
LEO 2	Organisational procedures	2				
LEO 3	Customer Care	2		1		
LEO 4	Core engineering principles - Mechanical principles	2				
LEO 5	Core engineering principles - Tools and equipment	2		4		
LEO 6	Core engineering principles - Material preparation, shaping and assembling	2		4		
LEO 7	Core engineering principles - Calculations	2		3		
LEO 8	Core engineering principles - Servicing and maintenance	2		4		
LEO 9	Core engineering principles - Thermal joining processes	2		5		
LEO 9	Core engineering principles - Thermal joining processes	2		3		
LEO 10	Core engineering principles :- Cooling and lubrication	2		4		
LEO 11	Engine fundamentals	2		4		
LEO 11	Engine fundamentals	3		3		
LEO 12	Clutches, fluid flywheels and torque convertors	2		4		
LEO 13	Mechanical transmission	2		3		
LEO 14	Braking systems on land-based equipment	2		5		
LEO 15	Wheeled and tracked steering systems on land-based equipment	2		3		
LEO 16	Tyres and tracks on land-based equipment	2		2		
LEO 17	Cutting and mowing equipment	2		3		
LEO 18	Harvesting and processing equipment	2		4		
LEO 19	Soil preparation, cultivation and plant establishment equipment	2		4		
LEO 20	Transport, handling and storage equipment	2		5		
LEO 21	Suspension systems on land-based equipment	3		2		
LEO 22	Electrical systems on land-based equipment	2		5		
LEO 23	Maintain electronic control and monitoring systems on land-based equipment	3		6/7		
LEO 24	Hydraulic systems and components	2		7		
LEO 24	Hydraulic systems and components	3		6		
LEO 24	Pneumatic systems and components	2		3		
LEO 25	Pneumatic systems and components	3		2		
LEO 26	Powershift, hydrostatic, CVT transmissions	3		4		
LEO 27	Refrigerant handling	3		1		
LEO 28	Air-conditioning/refrigeration operation and maintenance	3		3		
LEO 29	Monitor the handover and installation of land-based equipment	3		1		
LEO 30	Inspect and test land-based equipment	3		6		
CU 5	Maintain and develop personal performance					
CU 5A	Establish and maintain working relationships with others					

Book Review

ALAM member Brian Cairns has submitted this article:

BOOK REVIEW **The Farmer's and Groundsman's Workshop - A Guide to Planning Vehicle and Machinery Maintenance**

by Brian Cairns

AS well as the planning aspects of Vehicle Maintenance, this book gives lots of very useful and interesting information on how tractors and implements work and are serviced.

It starts off with information on machinery maintenance schedules, Health & Safety and on setting up a Workshop, with some useful tips for dealers, farmers and vintage collectors.

The chapter on Machinery Evolution takes the reader briefly through the development of Farm Machinery.

Particularly interesting are the chapters that explain how various vehicle systems work,

both on older machinery and right up to the current day, dealing with subjects like Common Rail Diesel Injection, as many engineers will have been trained in pre-electronic control unit days, and so may have only a vague idea about common rail. The chapter on Hydraulics demystifies many things and explains the difference between open and closed centre systems.

The book is copiously illustrated with exploded diagrams that show examples in clarity that pure words never could, especially in the case of the more modern types of gearbox. Even if readers of this

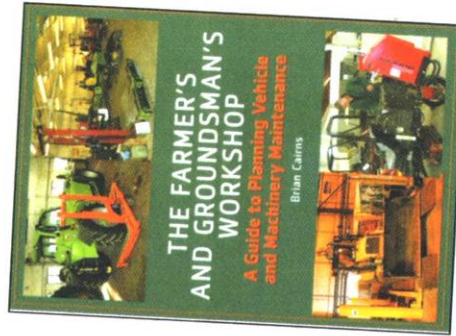
book were never to carry out their own maintenance on their equipment, they will still benefit from the insights it gives.

This book will appeal to students and lecturers in Agricultural Engineering, to machinery dealers, farmers with an interest in on-farm servicing and all tractor and implement enthusiasts.

The author started his working life as an apprentice agricultural mechanic at Rycotewood in 1977 and went on to obtain a degree in Agricultural Engineering at Writtle.

Brian is currently Director for Sustainable Built Environment

Publisher: The Crowood Press
 ISBN: 978 1 84797 110 4
 Price: £25.00
 Web: www.crowood.com



and
 Land-based Industries at
 MOVE Life Long Learning
 Network in the East of
 England.

Donald Bowler
 AMIAgrE, CEnv



ASSOCIATION OF LECTURERS IN AGRICULTURAL MACHINERY

Membership Application Form

Title	Initials	Forename		Surname	
Home Address			College Name		
			Address		
Postcode			Postcode		
Phone			Email		
My connection with education in agricultural/horticultural engineering is:					
Signed			Date		
Proposer (Member of ALAM)					
If you don't know any members, just return the form and we'll arrange contact with one in your area.					
HOW TO PAY- The current rate is £10 per annum, payable on April 1st each year.					
By cheque: Cheques should be crossed and made payable to "The Association of Lecturers in Agricultural Machinery", and sent with this form to the treasurer.					
By standing order: It will help us provide an efficient service to members if you pay subscriptions by Standing Order, by completing the following, and returning the whole form to the treasurer.					
Bank Name			Name of Account		
Branch			Account No.		
Address			Sort Code		
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Postcode			Please write your Initial and Surname as a Payment Reference in the space above, to ensure ALAM can clearly identify your payments.		
Please pay to Lloyds Bank, 12 Lendal, York, YO1 2AF, (Sort Code 30-99-99) in favour of The Association of Lecturers in Agricultural Machinery (Account Number 1373714), the sum of £10 immediately, and then annually on the first of April each year, until cancellation by me of this standing order, debiting the account specified above.					
This order cancels and replaces all previous orders in favour of The Association of Lecturers in Agricultural Machinery.					
Signed			Date		
Standing Orders are for a fixed amount, which can only be altered by you. It is not a Direct Debit, which allows the payee to vary the amount drawn.					

Return completed forms to David Heminsley, ALAM Treasurer,
The Old Byre, Lower Street, Doveridge, Ashbourne, DE6 5NS.

For use by the treasurer							
Details recorded		Payment received		Bank Order processed		Member number	

Form revised June 2009