

bio-power news

Issue 6

September 2003



It's been a hectic month. I have not been able to respond very quickly to many messages and e-mails because we were out sailing or walking, or just out in the garden chasing ducks. The summer holidays have passed too quickly. So many things I promised we would do with our children have not been done. I bet everyone gets the same feeling, and in a few weeks we will be back to winter hours and it will be dark at 5 pm. I must admit that I am very much a summer person and wear shorts and a vest as often as I can. Just as well we did not hold the AGM in August. It was chock-a-block traffic, and hotels were bursting with tourists. May be good for our local economy, but it would have been difficult to find accommodation for all of our members. So it will be a Spring AGM. JN

Global news from the ABI

Canada announces a \$1 billion Plan to Address Climate Change

In contrast to its Southern neighbour Canada is setting initial measures to tackle climate change. Prime Minister Jean Chretien early this month unveiled a nearly \$1 billion package aimed at helping the nation lower its emissions of greenhouse gases (GHG). The plan includes incentives for individuals and businesses to make their homes and buildings more energy-efficient, subsidies for the fuel-cell and Bioethanol industries, and money to assist provinces and native communities in launching initiatives that will reduce atmospheric emissions.

Still, Canada has lots more to do in order to meet its commitments under the Kyoto Protocol to slash greenhouse gas emissions - and this plan with its voluntary initiatives and subsidies will be the easy part. Setting new mandatory pollution limits on industry may not be so easy. It is a pity that Bio-diesel and our MWVF were not also included specifically, with its proven positive contribution to reduce climate change risks:

The production of greenhouse gases (GHG are CO₂ and CO₂ equivalent gases like Methane and N₂O) per 1 kg DFE (Diesel Fuel Equivalent = 42,7 MJ) is for Biodiesel 0,73 kg GHG/1 kg DFE and for fossil Diesel 3,63 kg GHG/1 kg DFE, which results into a reduction of 2,90 kg GHG emissions, when 1 kg Biodiesel is replacing 1 kg of fossil Diesel. (Information provided by The Austrian Bio-fuels Institute).

A new sensor ensures optimal burning of bio-diesel

The increasing use of Biodiesel as a fuel in Germany is an important contribution to an environmentally and climatically friendly approach to mobility. Up until now Biodiesel has been used successfully as a fuel for unmodified diesel motors. This bio-fuel has shown outstanding achievements, but it is recognized that bio-diesel burns differently from conventional diesel.

In order to optimize the use of Bio-diesel the research institute FAL in cooperation with Volkswagen completed the development of a fuel-sensor, which can differentiate Bio-diesel from conventional diesel in the tank and decides engine timing according to the respective fuel blend. The application of a fuel-sensor assures that the use of Bio-diesel is reaching an optimum in terms of emission reduction and fuel efficiency. This is seen as a breakthrough for the future marketing of Bio-diesel in a country where there is now political pressure to move towards the greater use of Pure Vegetable oil, as a bio-fuel.

Germany has now reached a production capacity of over 1 million ton Bio-diesel and has become the leading country world-wide. The cultivation of oilseed rape for the production of Bio-diesel also benefits agriculture. The production of raw materials means that the acreage in Germany for renewable raw

products has increased within five years from approximately 500,000 hectares to approximately 840,000 hectares. This development proves the large potential for renewable raw materials that aid environmental and climatic protection, and are in addition an important alternative to foodstuff production for farmers. Source: Union zur Förderung von Öl- und Proteinpflanzen / www.ufop.de
Report by: FAL Agricultural Research / <http://www.fal.de/en/>

Setting National Fuel Quality Standards

We were informed about the consultation by the Government of Australia, literally hours before the deadline. None-the-less we managed to get in this response to the consultation from the UK Bio-power Network.

Bio-power is an association of bio-fuel makers set up as a co-operative network, initially in the UK but now expanding to other parts of the world. Our aim is to provide alternative forms of vehicle fuel, and power in the form of heating and electricity, derived from non-fossil materials, which can be used as a direct alternative to fossil fuels. It is a fact of nature that the sun's energy is constantly being stored up in many natural organic forms. Most of these can be converted into bio-fuels and used to create energy for man's activities if there was a will to do so. There is no need to be using fossil fuels that cause such problems as Global Warming and Climate Change.

It is well established that bio-fuels are at least carbon neutral as energy released by the burning of recently grown organic matter does not add carbon to the atmosphere that was formerly locked below the earth's crust. Some say that the careful use of bio-fuels could indeed provide a means to redress and reverse the effect of the damage done by the burning of fossil fuels. Whilst in the past there has been controversy over the benefits of using bio-fuels, it is now well accepted by governments throughout the world that the use of bio-fuels is something to be encouraged for environmental and economic reasons.

In addition to the environmental benefits, there is an economic dilemma. Although there may continue to be discoveries of new resources of fossil fuels, the fact is that the cost of extraction is always getting higher as reserves are found in more inaccessible places, and eventually reserves will be depleted. For all these reasons the development and use of a wide range of renewable bio-fuel options is essential. We can't make new fossil oil or petrol, but we can grow plenty of new vegetable oil.

As an emerging world wide network of dedicated bio-fuel makers, Bio-power is very concerned to ensure that future regulation is not un-necessarily restrictive or misleading. It is generally not appreciated by governments or even by scientists just how easy it is to make all kinds of useful bio-fuels. It should be noted that the first Compression Ignition engines designed and built by Rudolf Diesel did not run on a an organic oil pre-processed as a Fatty Acid Methyl Ester. His engines ran on Pure Vegetable Oil. Most diesel engines built to-day will also run very well on Pure Vegetable Oil, and they will run even better if the basic natural oil is modified in simple but effective ways to improve performance reduce the emission of particulates etc. This is not ground breaking technology. It is very simple technology. We are very concerned that ministers and civil servants seem to believe that the only way to make a bio-fuel for vehicles is to make a Fatty Acid Methyl Ester. In fact this is a very wasteful and totally unnecessary process.

Bio-power has developed a method of making what we call 'Modified Waste Vegetable Fat' (MWVF). Unlike the subtractive method by which RME or bio-diesel is made ours is an additive process. Bio-diesel is made by the removal of the glycerol bond which secures the three hydrocarbon chains within the triglyceride lipid fat molecule. This creates an un-necessary waste product, and uses chemicals like caustic soda and methanol and energy. Instead of removing elements from the natural triglyceride molecule, the Bio-power process is an additive process in which the cleaned raw (or recycled) fat is simply blended with natural solvents the purpose of which is to add to the volume and reduce the viscosity of the fuel and improve the burn quality. This increases the Cetane value, adds to the performance and reduces emissions.

It is important to realise that the Bio-power method creates about 60% to 80% more volume of usable fuel from a given volume of fat stock, and it also provides a form of fuel that can be more powerful than bio-diesel and therefore it can run longer distances. The Bio-power fuel making method achieves between 120% to 150% greater tractive distances from a given volume of fat stock when compared to the RME method. It does not require any mineral chemicals in its production process like caustic soda or methanol - both of which are potentially quite dangerous. Most importantly, there is no waste in the form of glycerol, which itself contains a great deal of energy that could otherwise be used as a fuel. The Bio-power method ensures that there is no waste of potential organic energy when making bio-fuels.

All in all, we believe that the encouragement of the manufacture of Bio-diesel as a Fatty Acid Methyl Ester is not the best way to proceed.

This view seems to be shared by Germany where it has been possible to buy bio-diesel from the pumps for many years, and there has been a strong interest from the public in changing to the use of 'greener' and more environmentally responsible forms of energy. This development has been encouraged by the fact that there is no duty charged on the use of bio-fuels in Germany. It is also possible to have Pure Vegetable Oil delivered to your home for use as a fuel in Germany, without any charge of Excise Duty. Many people now run their Mercedes on

simple vegetable oil which has not been transesterified. This means that all the energy within the natural vegetable fat is available as a fuel without any waste. It is this form of bio-fuel that Germany is now pressing to encourage, because of the environmental benefits and also because of the thermal efficiency. In Germany there is now a considerable problem with the disposal of mountains of glycerol created by their enthusiastic manufacture of bio-diesel. This material used to have a value in cosmetics and soap manufacture, but the glycerol created as a by-product of bio-diesel manufacture is not of a suitable quality for cosmetic use. Some say that it can be used as a sugar to create ethanol for the manufacture of bio-petrol, but there are many other cheaper forms of sugar feed stocks available.

We therefore strongly advise that consideration is given to a very much broader definition of what can be termed a 'bio-fuel', and essentially that this should include any fuel derived from non-fossil materials. It is very important also that any definition of bio-diesel (especially for the purposes of any possible tax break to encourage the development and use of bio-fuels) includes the use of the much more efficient MWVF process, developed by Bio-power. It is our view that in the long term this will become the form of bio-fuel that has the greatest environmental and economic benefit.

Australia has enormous potential as a producer of bio-energy. It is well placed to grow energy crops and also to make the maximum use of existing waste materials which can be used as fuel stocks. We are already discussing projects in several locations within Australia, and we are informed that currently there is a welcome position in which bio-fuels are not subject to Excise Duty in recognition of the environmental benefits. We very much hope that this position will be maintained. In our view the imposition of a negative and restricting definition of what a bio-fuel is at this early stage in the growth of a diverse bio-fuels industry would be a very great mistake.

Yours sincerely
John Nicholson
Bio-power (UK) Ltd.

News from our members

Another first for Bio-power Plymouth!

Dear Bio-Power Friends,

Just a quick email to share our excitement with you. We've actually got a proper forecourt fuel pump up and running at our premises in Plympton. It has been restored by us and was professionally set up and calibrated yesterday and is now ready for use.

No messing about with fuel cans anymore! However, we still keep some cans in stock for customers who wish to take fuel away.

Best Wishes
Dolly Knight & Jonathan Stromberg

Does this mean that you can provide pumps for everyone? JN



Introducing Robert Scully, Bio-power (Bradford)

I work in forestry and attended one of the Introductory Seminars in June. I have always been interested in environmental care, and a bio-fuels business was seen as something I could run alongside my normal forestry work. I am tremendously excited by the opportunities afforded by the bio-power network. The idea of enabling many local small businesses to produce an ecologically sound fuel from a 100% recycled source and challenge a market dominated by global multinational corporations is something that I wholeheartedly support. The fact that the basic chemical processes behind it are so easy to comprehend also mean that in my view, this is a technology that will gain rapid growth and soon enter mainstream culture and cease to be seen as purely an 'alternative' or 'experimental' technology.

To this end, I wish to help cascade this knowledge to others and make the bio-power network a success. At present my technical knowledge of the subject is limited, but I do have an honours degree in Environmental Science, a practical nature, run my own contract business and am constantly trying to learn more about the subject!



Having worked with and through local environmental organisations, I knew how valuable it could be to get the support of our local council, and I arranged an informal meeting with the Senior Environmental Policy Officer of Bradford Council. He was very interested in pushing forward the development of a bio-power operation in Bradford. Apparently the council was already in the process of producing an environmental strategy & audit plan and was particularly keen on reducing the environmental impact of waste issues and transport within the district. There is political support and funds available for projects that can help with this process and obviously they are keen to find schemes that can produce a quick impact.

I pointed out to him that potentially, with the right support & funding, a bio-power operation in Bradford could produce positive results in quite a short time and would impact both on the waste disposal problems and sustainable transport issues. Basically, I said that within 6 months I could have a viable production plant running on a small scale. This could then be expanded in stages to avoid overstretching our resources in the short term, but had the overall potential to take all the waste vegetable oil in the district and turn it into bio-fuel.

To achieve this aim, I asked him to consider 3 main points:

What the council could do to facilitate the collection of as much used oil as possible in the Bradford District by Bio-Power (Bradford) - He said that, through the Environmental Health Officers, the council was in contact with every restaurant & food premises in the district. In theory, he saw no problem with the council using this link to promote the services of Bio-Power (Bradford) to collect waste oil from any of these premises (thus saving us a lot of leg work in identifying and contacting the restaurants individually). He was also very interested in the Bio-power Responsible Restaurant Scheme.

1. **Whether the council or the local water utility company (Yorkshire Water) would be willing to provide premises for a Bio-Power plant, either on its own site or shared with an existing department** - He was also positive about this and asked how much space we would need. I said about 2,000 sq feet of covered space initially with additional off road hard standing.

2. **Whether the council and the local water utility would be wanting to use the Bio-Power fuels in their operations** - He was very keen on this. At present they are about to take a trial delivery of 10% bio-blend for use in the fleet vehicles (when current stocks of 100% mineral diesel are exhausted).

I pointed out the practical and environmental advantages of our fuel over RME/Mineral Diesel bio-blends, not least the fact that fuel produced by Bio-Power (Bradford) would be produced within the district from waste oil sourced within the district ('closing the loop' so to speak) and would not be tankered in from outside. He was very interested in this angle.

He also said that, apart from the vehicle fuel aspect, they also run stationary diesel engines in some of their leisure centres etc. as combined heat & power units. I pointed out that the secondary product G100 fuel should be suitable for this use.

An interesting use of the road fuel that he suggested, was the promotion of a car sharing/pool car scheme for employees of the council and the local NHS Health Trust where pool cars running on bio-fuel would be used for shared journeys to reduce the number of cars in use on the roads of the district. I think this would potentially be a good short term project to provide positive publicity and an almost immediate impact on the council's environmental audit strategy. I also pointed out that the council & the local hospitals themselves are a good source of waste oil for conversion to bio-fuel.

Whilst being generally very interested in the project, he was also wanting to address some concerns regarding using the bio-fuel, specifically:

The impact on vehicle warranties and 'buy back' values on leased vehicles in the fleet.

The maintenance & verification of a standard quality product

Verifiable evidence of the effects of running diesel engines on bio-fuel over a period of time (fleet lease periods are usually 5 years). Bradford University is also interested in this.

I gave him some printed sheets taken from the web site to look at - including the description of/vision for the bio-power network; the bio-power charter; descriptions of the process & the fuels as well as the V100 leaflet

I am now collecting from 4 local restaurants to make the rough 'backyard' fuel, and will be registering with Customs & Excise when I get back from holiday. The quality of fat I'm collecting is variable, but it seems to work.

Rob Scully (*Alias Fat Bob!*) RPS Conservation Services
10 Hugill Street, Thornton, Bradford
West Yorkshire, BD13 3JW

(01274) 831340

Hi John, thanks for the BPN update. Since I was on the seminar, I've produced a couple of batches of bio fuel and my VW is now proudly driving around Northern Ireland smelling of fried food ! One of my neighbours actually came running over to me when I was pouring the MWVF into my tank and yelled I "don't do it, your engine will be ruined , you are only meant to put diesel into that !". You should have seen the look on his face when I turned the ignition and the engine started first time!

Clayton Mann.

Hi John, It is great to get these newsletters. (I have just sent off my membership etc).

A brief update on w124 motoring: I have just driven the family to France then to Scotland and back, mostly on chip oil from 100m down the road. I tip it through a pillowcase in a perforated 20L drum sitting on another drum with 2 taps in it, then put it straight in the car.

I also put a coil fuel heater in the rubber radiator hose which warms the fuel to about 70 before the filter. The heater that comes with the 124s was kaput and doesn't really look up for the job actually - might warm to 10 when it is freezing but not more.

The engine seems so happy, never misses a beat and always starts normally despite some of the oil going into the tank a bit cloudy or even lumpy. These Mercedes cars are such a wonderful anomaly.

James Kater.

Number of members

Our first bio-power Seminar was held in November 2002. Since then the network has grown rapidly, and we now have over 560 members in the UK, with over 2500 people on our global mailing list who receive BPN. There are about 200 who have formally joined as subscribing members by payment of £15.00. At present this payment does not give any higher level of participation, but every membership helps towards the material costs of setting up and running the Bio-power Network. Our only other form of income is from the fees collected at seminars, so the membership fee is an essential means of raising funds to cover our administrative costs. When the members web site is ready it will be accessible only to paid-up members, and also when we hold meetings only paid-up members will be able to vote.

Have you joined us yet? Become a full member now

If you fully support the aims and development of the Bio-power Network, and wish to help us expand and grow, then do consider joining us formally by returning a membership form with payment of £15.00. You can download and print the membership form from the Bio-power web site at <http://www.northwales.org.uk/bio-power/member>

The Bio-power London Regional Cell is now operating

We were able to attend a meeting held in London by 'London Remade' at which ideas were put forward to implement a bio-fuels project in the Greater London area. The idea is that the fat stock would be systematically collected and then processed to provide bio-fuels for the London councils and public services to set an example of best practice that the public and other city councils might the follow. It is all part of Ken Livingston's great vision for a cleaner greener London.

On the basis that it is better to work with London agencies than against them and as we are intending to do this anyway, we moved quickly to form a London Cell and get people involved in the development of a co-operative strategy to collect the fat stock in London and produce some fuel for commercial sale.

The first meeting was called in Euston station, and involved me in a horrific train journey from Wales and back. It was an informal affair, but very encouraging for me to arrive disgracefully late to find everyone engaged in such enthusiastic conversation!

The second meeting, slightly more formal than the Euston affair, was held in a function area of a Bromley leisure centre to the accompaniment of regular loud tannoy announcements of: "Would all children waiting to join the swimming session please move to the front of the queue". This of course detracted little from the heated discussions of the day, which, fuelled by dips, crisps, nachos and spare ribs lead to several concluded, and one or two un-concluded matters.

Although at times we delved into topics that required a great deal more research, it was clear that everyone who attended had a valuable contribution to bring to the meeting. Whilst little was set in stone, the depth of the discussion ensured that we all left with plenty to think about. The group is still young, but it is a welcome support to all those concerned with the London area in realising a strategy for the recycling of waste vegetable oils into usable fuels.

Philip Koritsas philip@pointfusion.com;

Web and IT development working group

We now have re-gained control of our original web site address at bio-power.co.uk, and I am arranging the complete re-writing of the public web site. I would welcome any ideas and advice on how you feel the public web site should be presented. I would also like to form an IT group who can help or even takeover the running of the bio-power web presence. If you have experience in any aspect of IT or web design please let me know so we can form a new working group.

Events working group

In some ways I was glad that an August AGM did not materialise. Getting the whole event organised single handed was a bit too much to take on – especially with so much building work going on all around the place, and also whilst I have to visit hospital often twice per week. I am aware that there are many members with specific skills in running events. I would like to bring you all together as a co-ordinated working group. So if you have an interest in children's activities, folk music, cooking on a barbeque, dealing with tickets and admissions, or booking venues etc, then please contact me to join a new Bio-power Events Working Group.

The .pdf password challenge

After the mess I made sending out the last issue of BPN, I thought it might be a useful opportunity to see if anyone can break the password protection I accidentally locked the file up with. We need to know how effective this password protection actually is so we can have confidence in the security it is supposed to provide.

Lots of people have made wild guesses based more upon their knowledge of me as a personality, but no one has guessed right yet. No-one has actually got the correct answer yet, but I have been amazed by the amount of information that people have told me about what is in my computer that even I did not know about! This whole issue of security is very important to us all, because there are many organisations and commercial interests that would like to monitor what we are doing.

A number of people have asked why 15.4 litres. Simply at 65p per litre it comes to exactly £10.00. *JN*

Your Questions:

I can now make MWVF but how should I sell it?

Many members are now getting to the point where they can make fuel on a semi-commercial scale, and they are asking how best to set about selling it. I do discuss this in greater detail in the Seminar Programme, but it is worth going over the advice for everyone's benefit.

I always suggest that people make fuel for their own use initially. Although the process is very simple, there are many potential pitfalls, and it is important to gain personal confidence in the making and use of your fuel before selling it to the public at large. We all make a few bad batches as we learn the boundaries. So do not sell this fuel to people who do not know you well enough to tell you about it if their fuel filters block up. So firstly sell to your relatives and friends. Make it very clear to them that this is a new form of bio-fuel and invite them to help you trial the fuel. Emphasise the need to let you know if they experience any problems. Also, get people to use the fuel as a 50% or lower mix with derv and slowly increase the proportion of MWVF. Do not expect people to go to 100% bio-fuel in one jump.

I also suggest that you provide new customers with a simple on-line fuel filter which you should fit on the fuel tank side of the fuel supply line so it filters your fuel BEFORE it reaches the standard fuel filter. Mount the new transparent filter so any sediments can be quickly seen in the filter papers. I also encourage customers to carry a spare on-line filter, just in case they experience any blockage as a result of sediments in your fuel. I say all this because the most common error when making MWVF is taking short cuts when filtering or maturing the fuel before use. It is very important to let fuel stand and then rack it off from the maturing container without disturbing it after it has stood still for at least 4 weeks, unless you have a polisher.

Once you go commercial you may find that you can sell the fuel many times over. So far every one we have sold fuel to has come back for more. You should be careful not to 'over sell' your fuel and thereby create a bigger demand for your fuel than you can fulfil. This will simply encourage competition from others, realising that there is now an active demand from the public for bio-fuels. I therefore keep my advertising discrete. Firstly, seek out those organisations in your locality that are most likely to share our ethical perspective. Health food shops, organic growers, The National Trust, and the Countryside Council (both of which have policy commitments to encourage the use of bio-fuels in their vehicles). Many local authorities also are very keen to be seen to be using bio-fuels, and that includes their refuse collection service. It is best to sell to organisations that already share our perspective for global change.

Then try a few farmers, taxi drivers and small local hauliers. I avoid selling to the general public as it is quite costly to sell in relatively small quantities. It is far better to be able to delivery 500 to 1000 litres at a time which can be pumped directly into the fuel tanks in a commercial operators yard, and mixed with derv. One word of warning though, make sure that you are paid before you fill their tanks. It is very difficult to remove your MWVF once it is mixed in with their diesel! If they have not paid in advance most hauliers will demand 90 day credit. You have to pay the duty on the fuel at once.

I also place a few discrete adverts on cards in local shop windows or in the supermarket. A phone number on your own vehicle or your collection van also brings many inquiries. If you use the fuel then advertise it with a notice on your car saying 'Fat is Fuel' with your telephone number. Beware of the planning implications of advertising commercially from your home address.

There is a benefit for bus companies who operate a bus service which runs on a time table if they use 100% bio-fuels. They can claim ALL the duty back, as part of Gordon Brown's scheme to encourage the take up of bio-fuels by the public service sector. This does not apply to the sort of busses that are used for pleasure tours.

When your customers come back for more of your bio-fuel on a regular basis then you should encourage them to install the bio-power fuel line heaters which although not essential for the use of our fuels will improve the general performance. These simple to fit kits are made and supplied directly to bio-power Local Agents by Jonathan Stromberg on 01752 345552.



The bio-power fuel line heater



The bio-power electric fuel heater (see article below)

Both items are designed and manufactured by Jonathan Stromberg, Bio-power Plymouth

I find it is best to sell the fuel to customers who have fuel storage tanks on their own premises. It is then easy to pump the fuel from an IBC in your own van. (Machine Mart cat ref: 051010010 12 volt fuel pump with hose and nozzle). If your customers do not have their own tank then encourage them to build a simple platform upon which an IBC can be mounted with a gravity fuel filler hose and nozzle, or a main operated fuel pump. (Machine Mart cat ref: 051010015 240 volt fuel pump with hose and nozzle).

As yet we do not have any formal pricing policy for MWVF. It is up to each supplier to decide the best price for their own area. I believe we should aim to undercut the average price of derv by between 5 and 10 p per litre. In my area this means selling at 65p to 70p per litre. So I charge 65p per litre ex-works, and 70p per litre delivered. I also give a discount on deliveries of over 1000 litres, but so far I have not provided in quantities of this size. I also sell the fuel in what I call 'testers' which are 15 litre plastic containers filled to a level which is 15.4 litres. At 65p this works out at exactly £10.00 per container. People wanting to trial your fuel are very likely to buy a container at an easy fixed price.

If you can recommend any good ways of selling your fuel then please write in and tell us all about it.
JN

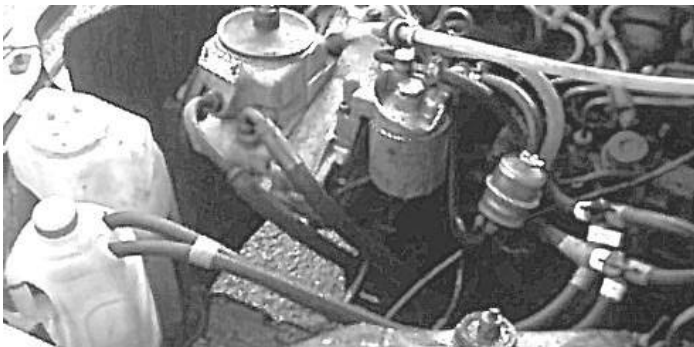
Testing the electric fuel heater

I was recently sent a sample of a simple electric fuel line heater designed and built by Jonathan Stromberg. Initially, this unit seems to be very similar in its purpose to the water heater exchanger, but it has the potential to provide additional heating of a small sample of fuel at start-up. The unit is simple to fit and is operated by a connection to the starter motor circuit. However, we connected the relay to an improvised dash board switch so we could test the device in different situations. We intend our fuel to be used in the standard fuel tank (i.e. without the need for a dual fuel tank and cross over system), so fuel heating devices are not 'essential' but they DO

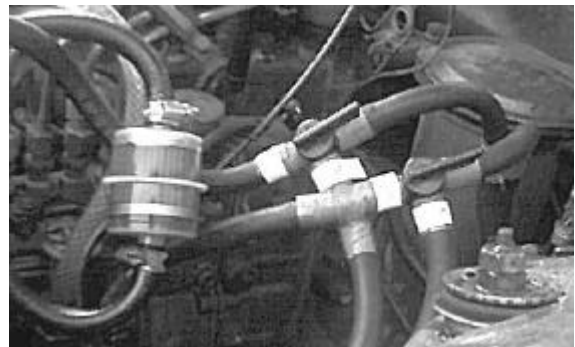
improve performance. It is for this reason I suggest that they are sold to committed regular customers. However, Jonathan's latest bit of technology is designed to provide extra heat boost at start-up, which is needed in very cold conditions. Unfortunately it is difficult to test this effectively in August in North Wales, but it did enable me to start up the Mercedes on some almost solid palm oil, which I near froze in the refrigerator!

Testing fuel samples

I attach some pictures of the simple dual fuel tank system I use to test fuels. The sample fuel is put in the small milk container within the bonnet space (of which the Mercedes has plenty!), and I use the three way plastic taps to switch the supply and return pipes. The transparent online fuel filter can also be seen clearly, positioned in advance of the normal fuel filter which is in the middle of the left hand picture. This is NOT a way to use our fuel, it is only for testing purposes. I use our normal MWVF V100 in the fuel tank, and then compare the performance with the sample in the milk container. My next task is to fit a larger form of container within the bonnet space for the sample fuel.



The testing rig, with taps and milk bottle container



close up of the additional on line fuel filter, and the three way taps

Our programme of events

August has been a hectic month with our children off school and builders working on the house and garden area all the time. I have therefore had to cut back on the two weekly sequence of Introductory Seminars, but I hope this will be re-started when the new seminar room is ready early next year.

Our Next Introductory Seminars will be held once per month

Seminar 20	5, 6, 7	September
Seminar 21	10, 11, 12	October
Seminar 22	7, 8, 9	November

This is your news medium – use it!

I do not write BPN for my own fun. Please send in material that you would like to be included. Don't worry if it is not written clearly. I can tidy it up if necessary. I do ask for pictures and a personal picture so people can get to know who is who in Bio-power. Please write a story about your own experience in setting up or testing our form of fuel, and stories of building plant or about your customer's response. Use this medium to share information that is not commercially sensitive with others who share our ideals and support us in reaching our aims.

If you are running a Bio-power working group or regional cell then please send me a copy of all minutes of meetings, and a current lists of participating members. If possible send me a copy of reports on achievements and events for publication.

Please use the information in this publication carefully.

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