



The Icen

CAM
Cyclomotor
Autocyclo
& Mopod

Magazine

£1.50

(or FREE to download)

*In partnership with the East Anglian Cyclomotor Club
and the New Zealand Cyclaid Register.
Trade supporter of the FBHVC*

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Next Issue

The next *Iceni CAM Magazine* is scheduled for the Radar Run in April. We'll be as flexible as we can over deadlines, but the sooner you send in any articles, adverts or news, the more likely they are to be included. Either write to 52B Levington Lane, Bucklesham, IPSWICH, IP10 0DZ or e-mail icenicam@ukfsn.org.

This Issue

This is the biggest magazine we've ever produced – it's all down to our main feature, which includes no fewer than six

machines. In the past when we've produced a very large magazine, we've told you there is a limit on how big we can go because of printing and postage costs. Well, this time we've exceeded that limit. As you'll see, the article is sponsored by Peter Vaughan – a very generous sponsorship that was enough, not only to produce the article, but also to increase the size of the magazine to accommodate it. Many thanks, Peter.

Copyright

Unless it says otherwise, the authors of the stuff in *IceniCAM* retain the copyright; if there's anything in here that you want to reproduce, please ask. There's one exception to this: you may freely reproduce the entire, unmodified magazine. In other words, we're happy for you to download the magazine and print heaps of copies to give to your friends but we'd like you to ask us before you do anything else.

Events

It may be winter, but there are still events to go to – here are some. Details of these events, along with a list of many more, are available on our Website at www.icenicam.ukfsn.org

Calendar

- 8 January EACC 29th Mince Pie Run from Orwell Yacht Club, Ipswich. 01473 687820
- 26 February VMCC Cyclomotor Winter Wanderings Run from Wootton By Woodstock: 07835 101560

- 2 to 4 March Vehikel autojumble, Veemarkt complex, Sartweg 1, 3573PW Utrecht, The Netherlands - www.vehikel.nl
- 11 March VMCC Cyclomotor Sussex: Bat & Ball, Newpound, Wisborough Green. 0118 973 0712
- 25 March EACC Daffodil Dash from Duloe Village Hall near St Neots. Ralph 01234 403796
- 31 March Motormarkt, Sportpark De Boshoeke, Hardenberg, The Netherlands. www.motormarkthardenberg.nl
- 7 April VMCC Cyclomotor Section Welsh Run from Castle Street Car Park, Abergavenny. 01873 858344
- 15 April **EACC 9th Radar Run and Mopedjumble at Bromeswell Village Hall. 01394 671222**
- 15 April 27e Bromfietsbeurs, Harlingerstraat 20, 1704BT Heerhugowaard, The Netherlands
- 6 May The Nasty & Nice run from the Rising Sun, Hall's Green, SG4 7DR. 01438 743515
- 7 May Provisional date for the VMCC May Bug Buzz from Radcot Bridge, Oxon. 01494 532172.
- 3 June Provisional date for the EACC Reservoir Dogs Moped Run from the Marks Tey Café.
- 3 June VMCC Cyclomotor Section Greenway Run from the Stratton Arms, Turweston. 01280 848233.

News

IceniCAM Information Service

As usual, we've been adding items to the library and, again as usual, they cover a wide range of dates and marques. The dates run from 1906 to 2003 and the marques alphabetically from Clark to Solo

Our thanks go to Bob Mellor, Dave Baker, David Gilliland, Fergus Muir, Ian Chisholm, Martin Scatchard, Nick Smith and Roy Best for supplying much of this material.

To use the Information Service, look at the catalogue on the website or just 'phone, e-mail or write in. We will send you

a catalogue of what we have, or you can ask us a question and we'll do our best to find the answer. Our favourite method of supplying documents is on a CD-ROM. We can fit quite a lot onto a single CD and we only charge £3 for that ... and that includes postage within the UK.

◆ E-mail: infoservice@icenicam.ukfsn.org

◆ Phone: 01449 673943

◆ Write: 7 Unity Road, Stowmarket, IP14 1AS

Free Trade

Adverts in the *Iceni CAM Magazine* are free! And that includes ones with a photo or logo. What's more, we can even assist with logo design. Send your ads to 52B Levington Lane, Bucklesham, IPSWICH, IP10 0DZ or e-mail icenicam@ukfsn.org

Mobylette
Raleigh
SPARES
TYRES, TUBES, CABLES, FRAME &
ENGINE SPARES
ENGINE REBUILD SERVICE



APLINS
395-7 Bath Road, Bristol BS4 3EZ
Tel. 0117 977 7376
No e-mail or website...
...just old-fashioned good service



Wanted: motor for a Pli-Solex (folding VéloSoleX 5000).
Stuart Miller, Stuart.d.miller@gmail.com.

**Cyclemotor &
Autocycle
Spares**



Piston Rings, Gudgeon
Pins, Bushes,
Bearings, Cables, Levers,
Exhausts, Workshop
Manuals, Parts Books,
Wheels, Rims & Tyres

2.50x21 Kings block tyres £35 (P&P £7.50)
Tubes £5

**Cyclemotors, autocycles
and spares bought**

Send 2 x 1" Class stamps for spares catalogue
136 WINDLEY ROAD
LEICESTER
LE2 6TB peter.stratford1@btinternet.com
0116 283 2070
(Answer Machine during day)



For sale: **Bike trailer**. It is made by Erde and can carry up to 3 bikes, depending on size. It has a brand new spare wheel. I'm looking for £275.

I can be contacted on 07773 925581 or
chrisw62@homecall.co.uk.



Extensive range of new moped piston rings from Achilles to Zweirad-Union. Often typically only £8 pr.

NSU Quickly rings 40mmx2mm A-slot £8pr.
Cyclemaster/Berini M13 26cc ring sets in both A & B-slot types £8. Selection of BL section Dykes sport rings, several sizes.

Pistons - New piston sets £20 per kit. Mobylette/Raleigh 39.98/38.99/39.00 sizes. Sachs & Rex piston sets inc. full range of oversizes. Yamaha FS1E piston sets (Std.) £20. Some HMW piston sets. NVT Easy Rider/Morini std 40.4mm & 40.8mm 1st oversize piston sets £30. Suzuki M12/M15 Sportsman/M15D Sovereign/M30 Std.41mm & O/S piston sets.

Repairs - Broken fin restoration on cast iron and alloy cylinders/heads.

Rebore & Hone - £25 per cylinder.

Sand Blasting Service, alloy and iron. Typically just £5 per casting.

News: Now back in stock: 36x2B (Cyclemaster32) £15 pair, 38x2C (Puch/Sachs) £10 pair & 39x2C (Mobylette) £10 pair. Watch website list for developments.

Tel: 01473-659607 (Ipswich).

E-mail: AtoZrings@mopedland.ukfsn.org

Website: www.mopedland.ukfsn.org

Wanted: a replacement engine for a BSA Beagle (would even accept that of an Ariel Pixie), preferably intact, though anything available would be considered. May also be interested in other Beagle parts, all cost permitting, obviously. Please e-mail Rob.Fearon

Wanted: petrol cap to fit a Vincent Firefly (the narrower style of tank).

Please call Keith Glover on 01782 392090.

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Saddles, Silencers, Exhausts, Handlebars, Fuel Taps, Cables, Tyres, Inner Tubes, Badges, Transfers, All Engine, Clutch, Gear & Carburettor Parts, Wheel Rims, Spokes, Ignition & Electrical Parts, Brake & Wheel Parts, Paint, Maintenance Manuals, Parts Books, Videos, T Shirts, Caps, Mugs, etc...

Visit our website

www.nsuquicklyspares.co.uk

for lots of pictures of recent events, NSU bikes, information and much, much more

Good stock of quality used parts at reduced prices

Complete NSU Quickly machines for restoration always for sale, some with V5s - from £120

Send 3 x First Class stamps for 13-page catalogue

ROGER WORTON

NSU QUICKLY SPARES

**56 CROSSLANDS, STANTONBURY,
MILTON KEYNES. MK14 6AX**

+44(0)1908 314797 (evenings after 7:30 best)

FAX +44(0)1908 550913 (days best)

E-mail: roger@nsuquicklyspares.co.uk

Wanted: **serviceable clutch drum for a single-speed Mobylette engine**, as fitted to 1965 Raleigh.

Rod on 01502 560869

rodfryatt@btinternet.com.

Wanted: **Vincent Firefly gent's tank ... or ... complete engine with gent's tank ... or swap lady's tank for gent's tank.**

Colin

07866-126469

wingyourheel@mac.com.



Red Raleigh Wisp, 1967. WUR 50E. 1.4bhp motor. Running order, all correct parts. Slightly scruffy condition, and red paint finish is not original colour. V5c and old buff log book. MoT expired August 2011, tax expired July 2010. Recent house move forces thinning of collection. £275 ono. I work shifts, so you may get ansaphone; leave message and I will get back to you. Paul 01394-671222 (Felixstowe, Suffolk).

WANTED: **Heinkel Perle** complete or parts especially engine, also **Leopard Bobby tank badges** or good photo of them so I can copy. Chris 01376 514587(Braintree).

Andy Est 1972 Tiernan



1949 Brockhouse Corgi £1,400



1951 James auticycle 98cc £1,500



1958 New Hudson auticycle 98cc £2,000



c1959 Moto Guzzi Zigolo 98cc £400



1967 Honda P50 49cc moped £325



c1978 Honda Express 49cc £200



Reproduction WW2 Welbike 98cc £4,000

Andy and Jo Tiernan
The Old Railway Station, Framlingham, Woodbridge, Suffolk, IP13 9EE, UK
Viewing strictly by appointment
Tel 01728 724321
Please see our website www.andybuysbikes.com



MZ Simson S50 cylinder head and barrel, excellent condition, still on standard bore - £30.00

Puch moped crankshaft, excellent condition, just needs the main bearings replacing, not sure which model it fits (MS50V?), has part number 350.3.10.215.1 stamped on the side and it measures 160mm wide - £20.00
Telephone Antony on 01604 781146 or e-mail antonyjaustin@hotmail.com.



Moped/autocycle drive chain 1/2x3/16eq £9 boxed length + £3.15PP. Spare connecting links for 3/16 & 1/8 chains 80p. Pedal chain 1/2x1/8 boxed length £3 + £1.45 PP. Spare spring clips pack £1. Link splitter std £8 + £1.50 PP / H-duty £12 + £3.15 PP / light cycle £4 + £1 PP. Imperial 3/8" cotter pins 4 for £1. Freewheels 16T-£3, 18T-£5, 20T-£7, 22T-£10. New Sachs clutch plates, cork insert or bonded types £8 each. NSU/Puch clutch plates £7 each. Garelli Record clutch plates £10. Cyclemaster clutch chain wheels with new cork insert set, buy £27/service ex £22. Block type & Roadster (reflector) pattern pedals £7 pair. Front suspension rubber bands Autocycle & Moby leading-link £4 each. Excelsior band fork rubber buffers £4 each. Moped 4" long black handle grips, 'Classic' style £4 pair. 'Groovy' style £3 pair. **New style-** Autocycle 5" long x 7/8" pair soft rubber 'palm' grips £4 pair. Wide range of most moped drive belts from £6. 2x19 Radaelli Westwood pattern 36 hole chrome rims £38 each. 26x2x1 1/4 36 hole chrome rims for early autocycle and trade bike £25 each. 2.25x17 Westrick pattern 36 hole Moby M50 chrome rims £18 each. Crazy bargain 26x2x1 1/4 autocycle / trade bike 2 new tyres + 2 tubes all for £20. 20x2x1 1/4 trade bike small front £6. 26x1 1/2 Michelin £10 & Bronx £8. 2.50x21 Kings £25/tubes £7.50 for 2F autocycles etc. 2.25x19 Heidenau £25. 2.50x19 Vee £20. **New-**2.00x19 Continental Whitewall £35, Blackwall £25/tubes £6. 26x2 Continental (Quickly, RM1, etc) £30/tubes £3. 2.50x18 Vee £20/tubes £6. 2x17 & 2.25x17 Vee Rubber tyre £15/tubes £5. 2.25x16 Vee (Batavus GoGo, Tomos, etc) £15/tubes £5. 2.25x14 Kings (Honda Express, etc.) £15/tubes £6. 2.00x12 Raleigh 'Redline' (Wisp, Ariel3, Scamp) £12/tubes £3. 3.00x8 Vee (Honda Stream) £18. Obsolete tyres, new/old stock, Ceat 2.00x20 (24x2) only 1 pair left, 1 3/4x20 (24x1 3/4) Rollerdrive (1 only). **New-**Fibreglass moulded panels RM4 side panels LH & RH £16 each, RM4 toolboxes LH & RH £16 each, Runabout side panels LH & RH £16 each. Old Moby side3panel set £40. Rubber rim tapes all sizes 12" to 26" £1. Cyclemaster engine mounting rubbers 4 x bush kit £12. Selection new Moby pedal shafts £8 each. Peugeot 102/103, Anker Laura/Ariel3/Batavus clutch discs £8. Curly Bugle bulb hooter £5, Straight bulb hooter £4, Curve bulb hooter £3. Chrome bezel red reflector with 5mm stud mounting £4. Villiers 3K mag cover badge, new £4. New stock, lots of cables for Raleigh RM1/2, Norman mopeds, Phillips mopeds, Villiers 3K engine. Petrol pipe 5mm/6mm clear 60p/ft, 5mm/6mm black neo £1/ft. Puch Maxi type fuel tap 12x1mm pitch LH/RH thread, just £10. Ewarts pattern brass plunger taps 1/8 Gas to tank/5mm ribbed outlet new £20. Petrol tap corks, barrel & blade types 50p each. Petrol cap seals for Honda PC50 £1.

Petrol cap seals for Cyclemaster/PowerPak 90p, for Runabout, Wisp, Mini-Motor, etc £1. OMG in-line fuel filter, 6mm unions, plated metal ends, quality - just £3! Cylinder black paint 100ml tin £4. Tax disc holders, alloy rim type & old fashioned Rubberlite singles £5, dual 'trade' Rubberlite £7. DeLuxe stainless single tax disc holder £7. Chrome blade-end decom lever £10. Removable cable ties, pack 50 for 50p. Stainless steel exhaust pipes Bown & James 2F A/c £45, Norman Nippy 2s Villiers 3K, Hercules Her-cu-motor, Kerry Capitano & Grand Prix £40. Moby chrome exhaust pipes £20. Kerry exhaust flange rings, new £8. Exhaust ring gaskets 30/33/35 o/d 80p. New front sprockets DKW, Kerry Capitano/Minarelli, Mobyette, Raleigh, Sachs, Parilla, Victoria, HMW and other odd continentals all £8. Honda PC50 front susp bush kits £16 set 8, PC50 frt susp pivot bolt & tubes in stainless £16 set 4. PC50 15T front sprockets £10. PC50 14T & 13T low ratio specials £10. PC50 28T rear sprockets £20. Huret speedo cables in 550/600 £8, 700mm £10. **New** stock VDO speedo cables, range of lengths. New stock of speedo drives VDO, Huret, Lucia, all £10. NOS speedos, Veglia & A.Rolle Milano £20 each. Moby main bearings £25 pair, and crank seals £3 each. Lots more stuff; you really need to visit the website www.mopedland.ukfsn.org Tel. 01473-659607 (Ipswich) E-mail chainmail@mopedland.ukfsn.org



Honda NC50 DeLuxe, 1981. Mileage 5447. Taxed and MoT'd until July 4th 2012. In very good original condition. Starts easily and runs well. Tyres excellent - Brakes good - Lights and switches operate as they should. Battery approx 12 months old. New rear brake light switch fitted recently (two weeks ago). New blinker unit fitted last year. Auto choke, Auto lube so no messing mixing petrol. 100mpg easy. Some original paperwork with bike. Tax discs till 1986 when she was laid up. MoT certs since I've owned her. Lovely little bike, drive on a pre-1991 car licence or do a CBT then "L" plates if you have a more recent license. Price £325 ono. Cash on collection. £325 is what the bike owes me. Ideally I want more but grab a bargain whilst I'm in the mood. Contact: Jock.Cross@waitrose.com or 01953 45 38 17 (Norfolk)

WANTED: **Brockhouse Corgi wheels**
Contact Alison on 01728 833736 or e-mail villiersjunior@gmail.com.



Rex piston sets: Kolbenschmidt, Mahle, Vertex, full range of oversizes. Rebore & hone service £25 per cylinder. Rings, clutch parts and plates for all models, front sprockets, cables. Extensive parts range for most models - Gadabout, Panda & Motorised Bicycle. 2-speed & 3-speed full engine gasket sets £5. 2-speed & 3-speed front sprockets. MPM crank kits for 2-speed/3-speed. Complete engines or parts, Rex 1-speed, 2-speed & 3-speed. Manuals for all models in printed format or on CD. New stock of practically all cables for all Panda & Gadabout models. New 50mm air filters £9, for 12 & 14mm Bing carb Panda/Motorised Cycle.

Hercules (GB): a small range of new & used stock. New piston rings Corvette and Her-cu-motor. Main bearings and seals. New Lavalette/Corvette/Paloma drive belts £6. See Website: www.mopedland.ukfsn.org for more details. E-mail: rexspares@mopedland.ukfsn.org Tel. 01473 659607.

1. **2 x Puch City X40 NOS windscreens** (choice of screens with or without indicators holes), complete fitting kits and instructions. May fit other Puch mopeds? £25 each.
 2. **Pair of Tomos moped forks**, red. Believed NOS with storage damage (or very slight use). £25.
 3. **Used rear shock** for Honda MS50D tilting trike, serviceable, £15
 4. **EZEE bike 250W 36v motor within front wheel** – with kit to mount on a bicycle. I am led to believe it's all there bar the battery. All NEW. £70 ono.
- All plus P&P (or collection welcome)
Contact Guy Bolton – Suffolk – 01728 663231 or guy.bolton@btinternet.com

Wanted: handlebars for a 1968 Raleigh Wisp
Chris Pick: 01733 252662 or giinton_chris@hotmail.co.uk



For sale: **useful box/bike trailer**. Well converted galvanised trailer with alloy mudguards, drop down ramp with high level rear/stop light. All lights working OK. £65.00. Phone Mick: 01953 483711 (Thetford area)

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Info on Corgi wanted, I have one in bits and need to know how it goes together - any drawings or information needed. Tel Owen 07920 560632 or e-mail owen.baker@cafebar.co.uk



Saddles, seats & covers: Foam padded moped saddles, new, just £30! Lycett pattern single saddles for light motorcycles - new £30. New Lycett covers £12. Trials type foam pad seats, new £40.

Saddlebags: Genuine leather, old-style toolbags suitable for fitting to cyclemotor, auticycle, moped, and cycle saddles. Fixing by riveted 1/2" wide leather straps, with plated buckles. Typically hold spark plug spanner, spare plugs, pliers, small screwdriver, cycle spanner etc. Dimensions outside (approx). Cycletool Standard 7"x1 1/2"x4" strap centres, £25 each. Autocycle tool extra 8"x2"x5" strap centres, £35 each.

Triangle Bags
– Large Cyclemotor 8 1/2"x7"x2" £35 each
– Large Cycle (narrow) 8 1/2"x7"x1 1/2" £30 each
– Small Cycle (narrow) 7"x5 1/2"x1 1/2" £25 each.

Large sizes accommodate all plug spanner styles, narrow widths clear 3-sp gear cable.

Mercury Frame Bag
Genuine leather frame bag to fit Mercury Mercette, 7 1/2"x3 1/2"x3" approx, £35 each. Small internal capacity for basic maintenance tools only. Press-stud fixing, buckle fixing option also available.

All available in black, dark brown or 'Antique' – please specify colour when ordering.

Tools: Folding Plug spanner £2. 2-piece Plug Socket & Bar £1. Cyclemaster pattern fixed-arm plug spanner £5.
Tel: 01473-659607
E-mail: saddlebags@mopedland.ukfsn.org
Website: www.mopedland.ukfsn.org

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James Autocycle & Villiers Spares (new old stock): Front fork main section £40; R.brake rods £4; Fork bottom rockers £60 ea; Handlebar fixing brackets £12 pair; Villiers gearchange cables £6; Front hubs (complete) £35 – others in stock (some bits missing) £25-£35; Rear hubs (fixed sprocket) complete £40; Brake lining sets with rivets £3. Contact points for Iom Tabor models.

Zündapp Sports Moped for sale £200 + VAT. Large selection of photocopies from parts books and manuals etc. of many continental mopeds, Hulsman, HMW and others. Many more parts. See our download catalogue at <http://home.arcor.de/cornucopia>
Cornucopia Enterprises, In der Grund 2, D-37647 VAHLBRUCH, Germany. Tel: 0049 5535 911114 (we all speak English). E-mail cornucopia@arcor.de



Villiers JDJ 18mm Bosch plugs £4. AC430-Z 14mm short-reach moped plugs £2.50p. New - 6V HT coil 32mm mounting for Mobylette etc £15. New Villiers 1F/2F/4F HT coils £20. New Villiers capacitors £9. Plug cap non-resistive £2. Wide selection of difficult to get 6V bulbs. 6Vx10W DC rated chrome horns £4. 6Vx18W rated AC horns £8 black or £10 plated. Chrome horn button £4. 5-way switch beam/off/dip/horn/cut-out £8. 2-way switch beam/dip £6. New

Wipac S446 pattern back lights £7. Wipac S446 rear lens £3.50p. Lucas 679 pattern back lights for NVT Easy Rider new just £9! Lucas MT110 & 211 pattern rear lamps new just £15! Lucas 477/1 rear lamps new just £18! Moby contact sets £8.50, Bosch contact sets £8.50, Cady contact sets £8.50p, Ducati Cucciolo contact sets, T1 £25, T2 £22.50. Tel: 01473-659607 (Ipswich), E-mail: electro@mopedland.ukfsn.org Website: www.mopedland.ukfsn.org



Clutch plate recorking: £9 per plate or sprocket plus postage. (I held my price since 2004 but, just last year, with the price of new stocks of cork rising by 85% in one year ... yes, 85%! ... I had to raise the price to £9 per plate or sprocket.)
Bob Metson, "Lomond", Chestnut Way, Henfield, Sussex, BN5 9PA. Telephone any time, 01273 - 494437. Answerphone connection in case I should be out. Callers welcome, but telephone first. E-mail: bobmetson@tesco.net



Pistons, rings, oil seals, gasket sets, points, capacitors, bulbs, ignition coils, switches for handlebars, rear lights, cables, clutch plates, bearings, con-rod kits, 2x17 tyres, etc, etc. Send 3x1st class stamps for list and prices
Jim Lee, 2 Bramfield Park, Theddingworth Road, Lubenham, Leicestershire, LE16 9TP.
Tel: 01858 481386 (h), 07931 718272 (mob).
E-mail: valstartin@hotmail.com



Suppliers of Yamaha FS1E, Puch Maxi & Vespa Ciao/Bravo Spares
Large stock of standard & performance parts. Visit our eBay Store at stores.ebay.co.uk/yvpspares or e-mail yvpspares@btinternet.com or phone 07778 450415 with your requirements.

Wanted: handlebar fairing/screen suitable for Suzuki FR80 step-thru.
Mick Cousins, 01473 240777 (Ipswich)



Rear Carriers: for Power-Pak (black paint finish) and Raleigh Runabout mopeds (bare metal). Made as original pattern. £25 each + P&P. Gilbert Smith, 12 Conifer Drive, Tilehurst, Reading, RG31 6YU. Tel: 01189-426997.



Rollerdrive – Machined New Cyclemotor Drive Rollers and Special Extractors

Vincent Firefly steel drive roller assembly c/w metalastic core. Service exchange £70 or New £80. Worn out Firefly drive rollers purchased for £5 each.

Firefly drive roller extractor - £12.

Itom Tourist extractor for original composite roller - £12. Itom Tourist all steel drive roller - £65. Itom Tourist Replacement drive roller extractor - £12.

Trojan Mini-Motor 20T drive rollers - £60.

Coming soon – **Lohmann drive rollers.**

Bosch 100mm mag flywheel puller NVT etc. - £15. Bosch 115mm mag flywheel puller for both alloy & steel types - £12.

Dansi/CEV mag flywheel puller for 2 & 3 window flywheels - £12.

Ducati Cucciolo mag flywheel puller - £12.

Honda P50, PC50, C50, C70, C90 dual-end mag flywheel puller - £14.

Lavalette/Paloma/Hercules Corvette mag flywheel puller - £12.

Mobylette/Raleigh clutch drum extractor - £12

Miller Type FW17 mag flywheel puller Phillips/Her-cu-motor etc. - £12.

Peugeot 103 mag flywheel puller - £12.

Raleigh RM1/RM2 Lucas mag flywheel puller - £15.

Sachs clutch centre extractor - £15.

Scott Cyc-Auto Wipac mag flywheel extractor - £20.

Simson SR2 Optima & S51 mag flywheel puller - £12.

Villiers 3K mag flywheel puller - £12.

Wipac Series 90 (ported 2BA) mag flywheel puller - £15.
Wipac Series 90 (plain 3BA) mag flywheel puller - £15
NEW: Wipac Bantamag mag flywheel puller 2BA/3BA - £15.
Mobylette/Raleigh metalastic engine mounting bush extraction/re-fitting tool - £15.
Piston Stopper engine service tool – £8.
Tel. 01473-659607
E-mail: rollerdrive@mopedland.ukfnsn.org
Website: www.mopedland.ukfnsn.org



Superb Honda C90-MN Cub, rare opportunity to purchase one of these much sought after machines in such outstanding condition, requires nothing apart from riding; you will not be disappointed, will come with 12 months tax and is MoT'd until 03.11.12. ~~£1400~~ **£975 firm.**
Queries! Contact Paul Barber on 01869 347146 eve, Mob: 07836 623407.



New and used parts for Puch Maxi & Fan Cooled Models.

HT coil function testing service.

Puch Maxi/Magnum Fuel taps £8.50. Cup & cone sets front/rear £4. Decompressor complete new & S/H from £3. Cylinder heads new & S/H from £6. Carbs S/H from £15. Bosch mag flywheels 1-sp S/H £8. S/H HT coils (all tested minimum 1hr) £6. ULO small rear lamp unit £4.50. New foamy saddle £30. Cylinder barrels from £15. S/H crankcase sets pedal-start and kick-start, LH/RH pairs £10. Steering head sets £10. 1 pair new Puch Maxi S model rear shocks in silver/grey c/w top & bottom bush sets £30. Front sprockets 11T-16T £4 each. 44T & 45T rear sprockets new £8.50p/used £4. Cables new from £4. Brake shoes £8 pair. Fork & pedal shaft bushes P.O.A. VDO Speedo 600mm inner shaft only £2. Mag flywheel puller dual-thread sized £7.50. Stands most types new & S/H from £5. New chrome flywheel covers, original Puch £15. Flywheel cover new black plastic £10. Speedo cable Puch Magnum £4. ULO 2507015 rear light lens £3.50 (also fits Moby). New alloy baffle £10. Ball-end Magura lever sets ftr/rear £5 pair, some with de-comp lever £8 pair, also RH lever only £1 each. Air filters complete (used) for Maxi/City from £4.

Fan-cooled – Rubber connector carb to air filter £10. Stand springs 50p. MS50 fuel taps £8. White petrol caps new £12/used £5. Gear change quadrants 2 & 3-sp £6.50p. Gear

indicator plate 2 & 3-sp £6.50p. M2 & M3 filler cap seal £4.
VZ50 Sport - fork shroud/headlamp brackets 1 pair yellow £15.

Puch M125 - nylon speedo gear 21T c/w oil seal £6.

Puch/Zündapp - Bosch spark plugs £2.50p. Points £8.50 set. Condensers £8 each. Plug caps £4.25. NSU used parts: mag flywheels £8 each. Centre stand (wire) £12. Centre stand (tubular) £15. Exhaust baffle £8. Cylinder head £10. Carb body £10. S/H dual seat from N25 (needs recovering) £20. Clutch cover for N & S models £15. Headlamp shell for N, S, & N23 £10. Front toolbox lid £10.

Villiers Junior barrel & exhaust box £20. JDL barrel & exhaust box £20. Villiers carb new parts: Fibre washer (5seals) kits £4.50. Throttle valve piston and spring. Taper needle spring. Banjo union bolt. Taper needle no.3 / 16-1 and no.2 / 25-1. Fuel needle lever to pin. Fuel floats new and s/h, + more s/h parts. Villiers ignition new parts: Condenser box washer/gasket. Points spindle bush. Insulating pad.

Tomos A3K/M/ML/MS - 26T front & 22T rear sprockets £5 each. Kick-start spring £3. Gasket set £3. Stand spring £1. Footrest rubbers £1.50 each.

Raleigh RM1&2 new spares – Lucas headlamp glasses (656105) £3. Steering head set (620084) £8. Mag cover clip £3. Clutch cables £3. Engine bracket lower half £4. Driving shaft (ME114000011). Headlamp body £4. Raleigh Service Memoranda (confidential to dealers only), 1960 rare £10.

Phillips Panda Mk1/2 rear sprocket (screw on type for coaster hub) new £10.

Honda PF50 MR2. All new parts - Clutch drum £15. 2 × clutch drum bearings £5 each. 2 × front sprockets £5 each.

Bulbs - wide selection of 6V in single and dual filament, bayonet and MES (screw) types.

All above + postage.

Tel: Dave Evans 01473-687820 (Ipswich).

Website www.mopedland.ukfnsn.org/shorty

E-mail c/o gareth.evans60@ntlworld.com



WANTED: CYMOTA PARTS - Exhaust and Engine Cowling preferably with headlamp, would consider complete unit in any condition. Please ring or text and I will call back. Mobile: 07828 644657.

I have a **Sinclair Goddard Power Pak**, complete and tank redone with gold logo. Good compression with Wipac electrics. Points all there and it puts out current. Another for spares, not complete. It's on a bike: old Indian thing ... but nicely done. It has registration docs, old buff logbook. It's for sale £200 the lot or swap for Raleigh Wisp. Neil 01787 475573. Can send pics, e-mail me n-price60@sky.com



Cyclenmaster engine mag flywheel cover. Good condition c/w badge. £15. Can post.
Tel: 01473-659607 (Ipswich).
E-mail: danny@mopedland.ukfnsn.org



Hi,
I have a **Trojan Mini Motor** in its original cardboard box (used), as you can see by the photo. I've had this unit for some years and have never run it, so would be a great project for the enthusiast. I also have an insurance doc dated 1952 showing the registration but no log book. I have been in touch with DVLA and it's possible to claim the original registration number under the DVLA's V765 scheme. I am open to offers but this must include collection or parcel post - "It's heavy".
Brian Thomas, brianpat.thomas@talktalk.net



Panels:

Mobylette 50V LH in green/white (for LH fuel tap), £15.

Mobylette 50V RH in green/white (for LH fuel tap), £15.

Moby AV92/SP93/SP94 (relay box models) RH panel in blue/white. £15.

Tel: 01473-659607 (Ipswich).

E-mail: danny@mopedland.ukfnsn.org



Tomos A3 1988, complete with V5. Breaking for spares. Bike is complete except for engine/gearbox assembly. All parts available, side panels, chain guard, front and rear racks, 2 seats one of which is in reasonable condition, carb, wheels, frame, whole bike can be purchased if wanted.

E-mail: pete.fisk@hotmail.co.uk
07723 414698 Felixstowe



Panels: Mobylette M50 "Continental style" LH in white (for LH fuel tap), some damage at back tip, £10. Raleigh RM5 RH in white & iron oxide (late type, also fit Moby AV89), £15. Batavus RH in black, £15. Tel: 01473-659607 (Ipswich).

E-mail: danny@mopedland.ukfsn.org



KTM Hobby / Sachs Auto Barrel, piston, g-pin & circlips, inlet manifold, & complete with decompressor. £15. All clean and vgc. (Needs new rings, available from [AtoZ at www.mopedland.ukfsn.org](http://AtoZatwww.mopedland.ukfsn.org))

Cylinder head, sand blasted and clean. £5. Engine top-end stud set (4) c/w nuts and washers. Nice and clean, blacked finish (not illustrated). £2. Can post.

Tel: 01473-659607 (Ipswich).

E-mail: danny@mopedland.ukfsn.org

Wanted: A rear calliper for a Mk 2 SIM. It's the underslung one, and according to the CAMmag article, it was made by Talon. It's for a static exhibit, so anything will probably do. I don't even have a close up picture of it. I now have a Mk 2 and a Mk 1 and will always buy SIM bits or complete machines for myself. I am collecting odd 50's of all sorts. I am absolutely not a dealer and nothing I buy is for resale. Thank you.

George 07941 611 644 in Lincolnshire



Panels:

Mobylette M40 LH in orange/white (for RH fuel tap), £15.
Mobylette M40 RH in orange/white (for RH fuel tap), £15.
Mobylette M50 RH in orange/white (for LH fuel tap), £15.
Mobylette M50 RH in grey primer (for RH fuel tap), £15.
Mobylette M50 LH in grey primer (for RH fuel tap), £15.
Tel: 01473-659607 (Ipswich).

E-mail: danny@mopedland.ukfsn.org

TYRES FOR SALE:

2.50 x 17" brand new £20 each.
3.00 x 18" brand new £20.
3.00 x 18" lightly used, 5mm tread, £10.
or £55 the lot. Collect from Selby, J34, M62.
Tel: 01757-704531 or Mob: 07773-087301



Raleigh RM5 Supermatic, 1967. Reg: BRF 77E. No docs. Breaking for parts. Lots of bits available. Both wheels c/w good tyres and brakeplates £25 each. Complete chaincase set £25.

Tel: 01473-659607 (Ipswich).

E-mail: danny@mopedland.ukfsn.org

Can post.



Mobylette X-1 or Cady engine. In good condition and piston is free. This does not include carb or external coil. £35. Call Jonathan on 01635 871505 or 0771 8128621 (Thatcham, Berkshire).



Mobylette AV92 (relay-box model), 1975. Reg: HPV 106N. No docs. Breaking for parts. Lots of bits available. Unobtanium - VGC front sprocket, £15. Unobtanium - VGC rear sprocket, £25. Unobtanium - Seat with good base and cover, £30 (also fits SP93, SP94, & AV89 models). Can post parts.

Tel: 01473-659607 (Ipswich).

E-mail: danny@mopedland.ukfsn.org



Raleigh Runabout rack, rear tank factory carrier.

Reasonable chrome. Should clean up to be quite passable. £15. Can post.

Tel: 01473-659607 (Ipswich).

E-mail: danny@mopedland.ukfsn.org



Free to collector: **Anker engine parts.** Two cylinder heads, some gaskets and flywheel and coil. The Anker engine was fitted to the Ariel 3 and other machines.

Call Jonathan on 01635 871505 (Thatcham, Berkshire)



1982 (Y) Honda Camino 'Sport', Tax & MoT until end of January 2012. Many parts replaced. £400 ono. Buy now before it goes on eBay! Terry, 01728-454066 or 07510-510558, evenings/weekends.



Mobylette M50V, 1981, reg SDX 500W (transferable) with V5c doc. Clean condition and good running order. New tyres, tubes, brakes, fork gaiters, and a number of other parts. C/w original fitted indicators and 3-coil generator set. £225 ovno. Tel. Terry, 01473-410672 (Ipswich),

terence.smith853@ntlworld.com



Villiers Mark 20 fan-cooled stationary engine. Alloy block, iron cylinder, alloy head. Last worked 5 years ago, nice runner. £75 ono.

I work shifts, so you may get ansaphone; leave message and I will get back to you. Paul 01394-671222 (Felixstowe, Suffolk).



Petter A1 air-cooled stationary engine mounted on barrow frame. Last ran 5 years ago. Very nice runner. Wico magneto. £100 ono.

I work shifts, so you may get ansaphone; leave message and I will get back to you.

Paul 01394-671222 (Felixstowe, Suffolk).



JAP stationary engine. Fan-cooled, iron motor, alloy head. Last ran 5 years ago. £50 ono. I work shifts, so you may get ansaphone; leave message and I will get back to you. Paul 01394-671222 (Felixstowe, Suffolk).



Mountain of MZ. Used MZ bits, all engine and cycle parts. TS150/TS125/ETZ125. If you want pretty much anything, it's probably here. christopher.day70@ntlworld.com Tel: 01394-215476 (Felixstowe) Mobile: 07989-256707.



Briggs & Stratton Model 0502, Type 0154 fan-cooled SV stationary PTO frame. C/w flexible drive shaft to Tarpen-Flex chainsaw & hedgecutter accessories. Last ran 5 years ago, good working order. Very collectable. £150 ono. I work shifts, so you may get ansaphone; leave message and I will get back to you. Paul 01394-671222 (Felixstowe, Suffolk).



Leopard Bobby 6 2-seat moped with Sachs 49cc 2-speed motor. Dated October 1957. Registration WAC 987. Not on DVLA and no docs, but the original number is easily recoverable by V765 application (only £10) through East Anglian Cyclomotor Club dating service. Original issuing records copy is available for AC series from Warwick County Records Office, Priory Park, Cape Road, Warwick, CV34 4JS.

Tel: 01926-412735. To best knowledge the bike has not been run recently, but there seems little reason that it shouldn't do so. Engine turns over OK. May have been test run a while back by last owner, former Leopard Marque Specialist. Appears pretty complete in good sound and original condition (just broken lighting switch). Rare and collectable model for easy restoration. See [Leopard article "Top Cat" in Moped Archive](#). £695ono. Tel: David 0116-2811945 (Wigston, Leics) E-mail: dv29@le.ac.uk



For Sale: **1977 Casal Sports** moped, MoT to 12/8/2012, Tax to 29/2/2012, good condition, runs fine, all electrics work, £675. Phone Derek on 01945 871228 for more info.

I have long been fascinated with small quirky engines of varying sorts and I would like to get hold of a **Lohmann compression-ignition engine**. Perhaps someone might know of one or have one themselves they would sell. Please e-mail anthony.ells@tiscali.co.uk or phone 07746 282664.

Wanted: old British moped-style rear number-plate bracket. Condition not really important (New Hudson, if there is a chance, would be spot on). Many thanks. Contact: chrisdunkley@compuserve.com or 07973 510 518



Honda PC50 K1 OHV moped, 1971 (qualifies for 'Historic' status, tax exempt). Reg YNR 728J c/w V5c doc. Stood up since last tax expired in September 1976. Engine rebuilt with replacement clutch, top-end reconditioned & fresh oil. Extensive renovation of general cycle parts inc. recon centrestand and pivots. Engine starts easily and runs well. All lights / horn / speedo / brakes working fine. Seat cover good, exhaust sound. In completely original condition with all correct parts. Good mechanical order, just cosmetically challenged. £275 ono. Tel: 01473-659607 (Ipswich) danny@mopedland.ukfsn.org.

Life in the Slow Lane

by Mark Daniels

Sponsored by Peter Vaughan – East Anglian Cyclomotor Club, Devon Section, and Lohmann Enthusiast.

Just lie down on the couch, close your eyes, and relax... Let's prepare for a nice, leisurely voyage through time across three centuries...

Considering the machines involved, it's going to be a particularly slow cruise, so we'll just gently ease back through the past... back to old Victorian London in 1892, where German immigrant Carl Lohmann establishes his Lohmann Company as a bicycle manufacturer and trading office.

Fast growing popularity and demand for cycles meant business was good and, in 1896 he decided to form a sister company back in Germany, at Bielefeld, since this town was developing to become a major centre for the European bicycle manufacturing industry. One of Lohmann's primary activities here concerned leather saddle work, and the

German business began to establish its name, particularly in this sector.

The two companies continued in parallel into the 20th century, where a 1906 advert presents "C. Lohmann" trading cycle accessories, particularly carbide lamps "made in my own works..." at 35 Great Eastern St, London EC.

Advertisements in 'The Trader' say that callers are welcome, so this address appears to have represented an actual business premises (rather than just an accommodation address for the registered office). Lohmann occupied stand 228 at the 1906 Stanley Show: "Here will be found a very full assortment of all kinds of cycle and motor cycle accessories, tyres, tools, frames, fittings—in fact, practically everything connected with the trade, besides also a complete selection of very suitable and saleable lines for the winter trade, such as phonographs, records, footballs, air-guns, mechanical toys, etc. etc."

"The greatest speciality will be the Perfecta acetylene lamps, which include the Perfecta Nova, Perfecta Original, Perfecta Stella, Perfecta Simplex, and Perfecta Regina. All these well-known lamps



have been considerably improved in construction and finish. Other lines include Superba saddles and tool-bags, which goods are also manufactured in their own works."

Lohmann's familiar 'rays of light' logo most probably came about from its Perfecta acetylene lamp products.

The advent of the Great War in 1914 presented particular difficulties for the British business division, since Herr Lohmann never relinquished his German citizenship, so the London Lohmann company had consequently been founded as a 'foreign owned' enterprise. Carl Lohmann died in 1916, leaving his family in Bielefeld to convert the German company into a private business, while the London assets were confiscated as 'enemy property', its equipment dismantled and dispersed, and the original British-based company disappeared. Following the armistice, the German Lohmann company continued into peacetime manufacture of bicycles and cycle accessories, production of saddles, tool bags, saddlebags and travel suitcases from its leatherworks.

With Europe sinking back towards conflict during the late 1930s, Lohmann was classified in the listing of National Defence Industries in order to produce military equipment, uniform leather accessories and motor cycle saddlebags, the demand for which kept the factory working at full capacity until the plant was at least heavily damaged, if not completely destroyed during USAF B-17 Flying Fortress air attacks on Bielefeld on 20 September and 7 October 1944.

During the closing phase of World War II, when the Third Reich was suffering chronic fuel shortages, it's widely conjectured that the Wehrmacht initiated research and directed some of its engineering scientists towards the design and development of various fuel-efficient compression-ignition engines capable of running on the crudest of basic fuels, such as paraffin.

9 May 1945: The Führer has committed suicide, Germany is overrun by Allied armies and Grand Admiral Karl Dönitz has acknowledged the nation's defeat. The European war is technically over and, for arms manufacturers on either side, the end of a war signals lean days ahead, most particularly for any military-dependent manufacturer on the losing side,

so it's probably time for the business to look for something else to do...

The Lohmann company re-emerges in 1948 references, when former Wehrmacht boffin Hermann Teegan, now working for Lohmann Werke AG, is granted a French patent on 3 September, followed by registration of a further German patent on 2 October. These relate to a concept variable-compression-ignition motor, and on 3 March 1949, a further German patent was recorded on for different type of engine developed in conjunction with a team of other engineers. On 30 April 1949, Teegan applied for a United States patent on the same engine, which published drawings clearly describe and show distinctive and unmistakable features of a new and unique cyclemotor engine that is about to enter development.

A prototype model engine was soon constructed, mounted onto a bicycle frame, and testing began.

Reports in the German press generated considerable public interest, which convinced Lohmann to seize the moment and prematurely rush the clip-on kit into production somewhat before it was properly developed.

Even five years on in post-war Germany, low grade petrol was still in short supply, so there was going to be some obvious appeal for a small and economical engine primarily intended to run on paraffin. The tiny 18cc, 28mm bore × 30mm two-stroke engine was specified to develop 0.75bhp @ 6,000rpm (a comparatively high revs figure compared to conventional motors of the time) for a given top speed of 16mph, the power rating probably being based upon use with paraffin fuel.

This engine is often referred to as an 18cc Diesel, mainly because it has no sparking plug or ignition system, and a Diesel engine might seem the nearest familiar engine to it. Diesels are generally characterised by injectors & poppet valves and operate on a four-stroke cycle. The Lohmann however complies with none of these, since it operates on a two-stroke cycle and conducts its vaporised fuel through transfer porting channels.

The Lohmann would now be classified as an HCCI engine, meaning Homogenous Charge Compression Ignition, which is a form of internal combustion where a mixed fuel and oxidiser (air) are compressed to the point of self-ignition. HCCI engines can be highly efficient since they generally function under relatively high compression ratios (even above 15:1) and on lean-burn fuel mixtures, which naturally results in low emission production. They will operate over wide load and speed ranges and, under optimum conditions can sometimes achieve higher efficiencies than conventional spark-ignition motors.

Downsides are that the operating conditions can be destructive to their mechanical components, they can be quite noisy and require efficient silencing, and the auto-ignition event is more difficult to control than in conventional spark-ignited engines. These have proved to be major hurdles to more widespread commercialisation.

Subsequent research has shown that the use of proportionally mixed fuels with different re-activities (such as petrol/diesel/paraffin combinations) can improve control of the auto-ignition event and burn rate, so further increasing power output, performance and efficiency.

Running mixed fuel combinations is called RCCI or Reactivity Controlled Compression Ignition (more on this later in the road test, and goes to explain some reason behind the East Anglian Cyclemotor Club's acquisition of a fuel mixing licence).

As illustrated by press photographs from the 1950 Frankfurt Show machine, early examples of the Lohmann Type 50 cyclemotor varied from the later production engines by different cylinder, head, exhaust, and intake arrangements, which indicates the extent to which the design was being further developed in manufacture.

The engine was initially launched for sale in Germany and neighbouring continental Europe, progressing to further European markets as production established.

The British motor cycling press assessed and reported on the Lohmann as early as 1950, though the cyclemotor didn't actually arrive in the UK until two years later when Britax concluded an importation and marketing agreement with the Bielefeld company, and advertised the engine for sale at 24 guineas at the Earls Court Motor Cycle Show in November 1952.

In Britain, the Lohmann was advertised to run on a conventional 2-stroke petrol mix at 25:1 ratio, though this was probably to avoid duty difficulties with the Inland



Revenue regarding the use of low taxation fuels on the public highway. Running the engine on a straight petrol mix wouldn't normally have been the recommended fuel type to suit the motor!

The Lohmann engine was said to be able to run up to 9,000rpm, though probably not under loaded conditions except maybe downhill, which would calculate to some 24mph, so we'll see about that!

For our road test, we're running an optimum RCCI fuel of 25% petrol, 25% diesel, 50% paraffin, and 25:1 2-stroke mix of semi-synthetic oil, which combination is blended for optimum performance.

Our test machine comprises a period Germanic style swan-neck bicycle fitted with drop handlebars, and a specially constructed 'pressure-set', which under favourable conditions, allows the roller drive engagement to be adjusted to lighter contact to reduce frictional losses, and so improve performance.

To all practicality, this Lohmann is configured to deliver the maximum performance we can expect to wring out of one of these machines – so let's go snail racing! Turn on the fuel tap ... and that's pretty much where any similarity to anything you've ever know before completely ends!

Since we're running in dry conditions we notch the roller engagement into 'light' pressure using the big lever to left of the down tube. A firmer pressure setting is available for wet conditions where the rubber drive roller might slip.

There's not really any carburettor as such, so there isn't exactly a conventional choke in any sense that you might normally expect! The engine is supplied with its fuel by a gravity-fed fuel metering device, though this is controlled in conventional manner by a twistgrip throttle operated air slide, so that might seem easy enough to relate to – however, to really confuse things, the fuel metering unit has a 'starting enrichment device' that is also operated by the throttle twistgrip. The slide continues to open beyond the 'full throttle' position, which then starts to close the airway, but continues to open the needle jet, so enriching the mixture for starting. An extra spring on the air slide is supposed to make it possible to 'feel' when the choking function is being engaged, but in reality, you're not really aware of anything happening.

On the left grip is what looks like another throttle twistgrip, except this set has a push-me/pull-you twin cable connection to operate compression release and variable compression control between the given range of 8:1 and 12.5:1 ratios.

Turn this left grip forward to decompress to more easily navigate our bike to the kerb, trigger-switch the cycle hub gear down to 2nd otherwise starting is going to involve excessive effort, then pedal away with the decompressor engaged to get the engine spinning and build up some momentum.

Turn the left grip up to maximum compression, keep pedalling, open the throttle, and keep pedalling ... keep pedalling ... there's a plume of fuel vapour drifting out the tailpipe, but no combustion yet ... keep pedalling ... Argh! Just take a minute for a little breather.



There's been a while since this Lohmann last ran, and it seems a little reluctant.

Our backup rider has a go, with the same lack of result, so now there are two of us taking a minute for a little breather.

Our third attempt is finally rewarded by a clattering noise from below, which doesn't really sound like an engine firing up in any normal sense. It's more like something where all the bits are just loose inside and jangling about, rather like a motor that's broken?

We continue pedal assisting the rattling Lohmann to run while twiddling the left and right hand grips to try and get some feel for what's going on. By reducing the compression on the left hand grip the clattering noise abates, so that's all compression related, but the engine firing also fades out, so we guess this might be because it's still cold. After a few minutes of pedal assisted running up and down the road, we now seem able to get the engine to pull under its own power, so take a short run down the lane to work up some temperature before our test ride.

Now the bike's been run again, further restarts prove fairly easy, or maybe we're just getting the hang of this?

Tracked by the pace bike we rattle down the lane and towards the village outskirts, but glancing back we notice our pace rider is hanging well offside of the white plume of smoke drifting from below our mount. The now combusting cocktail of fuels produces smoke from what it burns, and dirty smuts from what it doesn't burn.

We don't think it'd stand any chance of compliance with modern emission standards.

The trick for controlling Lohmann is to keep the throttle pretty much open all the time (but not too open, or you'll overfuel by engaging the choke), then balance optimum running by varying the compression ratio to suit the conditions. The engine generally knocks under excessive compression setting, and performance falls off as the combustion becomes premature. Turning down to drop the ratio produces a retarded rattle and reduction in power, then turn down too much and combustion will cease.

Somewhere in between these extremes is a happy medium, where the engine runs relatively comfortably on its best compromise setting according to variable conditions, being: engine temperature, incline or wind resistance. Just small changes in any one of these conditions may demand some fine tuning to the balance of compression and throttle setting to maintain optimum running, so the rider is constantly twiddling these controls in search of the ever elusive optimum setting.

You soon get to appreciate that the bike will not simply go fastest on full throttle and highest compression. Often the best performance may be found by backing down the compression twistgrip and regulating the throttle, so the whole Lohmann experience certainly requires adjustment to a whole new scale of values.

You can readily accept the need to pedal assist against even the shallowest of incline or headwind, since no-one is realistically going to expect any 18cc engine to deliver much capability against even the mildest adversity.

The most satisfying feeling comes when you get onto a flat or light downhill run, then manage to tweak the compression set and throttle valve into optimum setting, and just briefly, the miniature engine crawls gently up to maximum speed, before the conditions change slightly again (usually a small gradient) and you're back to twiddling the balance again.

It's quite difficult to concentrate on finding an optimum control balance when pedal assisting the bike, so the engine often wasn't overly helpful on hills, but a more practiced Lohmann rider and accomplished cyclist would probably manage to get a bit more out of the engine under such conditions.

In still air, fully crouched, and on engine power alone, our very best on flat paced at 17, and downhill run 20mph.

Even the downhill run isn't simply a case of tucking down and giving it the beans, this still requires a perfect compression and throttle valve balance or the engine will hold back its top speed.

When we did get the tune right, the engine certainly seemed to handle its revs capably enough, and the maths says 20mph = 7,500rpm.

Since Lohmann motors have no generator set, the rider is compelled to resort to cycle lamps.

The lowly performance meant the cycle brakes were never challenged any more than they would be by the conventional cycle, and this machine had a 3-speed coaster back-pedal hub brake, particularly suited to the Lohmann since the benefit of no distraction from operating a hand brake lever allowed the rider to concentrate on regulating best compression control at all times.

A Lohmann rider is certainly not going anywhere fast, but they're going to be kept pretty much occupied by constantly twiddling the controls to maintain running performance.

The varying engine sound is something you sort of get used to and accept. With the large volume silencer and air filter/baffle there's not so much any particularly distinctive exhaust or induction noise, as varying degrees of knocking, rattling and clattering that just sound as if the motor is falling to pieces inside. If it was really about to break, then you probably wouldn't be able to tell any difference!

Upon parking, the exhaust soon starts to drip filthy smuts out of its tailpipe. A used Lohmann will readily develop an oily film about its parts, and after we took the bike back to the owner, the van smelt strongly of 'commercial fuel' for a good week afterward. Despite the undoubtedly frugal fuel consumption, there's nothing clean or green about the claimed 300mpg economy of this microscopic cyclemotor, it's a dirty little engine!

The Britax accessory firm initially began marketing motor cycles with importation of the Ducati Cucciolo cyclemotor engine in 1949, selling various versions of this Italian model until 1956. Britax didn't stick with the Lohmann for long since sales proved very limited, and the 18cc cyclemotor only featured in their listing for 1953.

Lohmann sales pretty much plotted a downward curve shortly after it was initially established. There wasn't anything particularly wrong with the engine, but just a change to the budget market environment that contributed to its decline. Cyclemotors in general were suffering falling sales as greater social affluence moved public focus more up-market towards mopeds, scooters, larger motor cycles, and cars. The brief moment of super-economy cyclemotors had become eclipsed almost as soon as it started.

Based from 1951 figures into established markets, Lohmann sales were down by 25% in 1952, 75% in 1953, 90% by 1954, and 97% in 1955.

People just weren't buying cyclemotors any more.

Efforts to make up the collapsing sales numbers were made by attempting to extend distribution toward further markets. A Hispania marketed version was offered into Spain, Lohmann Motori srl was established at Milano to sell engines into Italy, before evolving into Ambimes srl at the same address and then, finally, Stucchi Cycle Co. became Italian concessionaires and established an agent in Switzerland.

The plummeting sales figures however reflected the generally despairing situation.

In January 1954, the American *Popular Science* magazine published an article on a mounting conversion of the Lohmann engine from cyclemotor to outboard propulsion on a canoe. The engine was pre-heated for rope starting by burning fuel pellets in a shield around the cylinder.

By 1955 it was pretty clear that the Lohmann had no future prospects as an auxiliary bicycle motor in the European market, and interest from the USA connection resulted in sale of the engine tooling to an American Company, which

hired Hermann Teegan and established a research and development studio for him in Brackwede.

The German Lohmann company which manufactured the cyclemotor engine went out of business in 1960, while Teegan continued to work on the development of a 125cc HCCI motorcycle engine until his sudden death in 1962.

Work had initially started on design of another compression/ignition engine of 125cc capacity early in 1950, and by 1951 a working prototype was undergoing extensive testing. The engine was intended for installation in an unusual Lohmann-built scooter-cum-sidecar 3-wheeler combination in one unit, which streamline faired hybrid was initially shown as a prototype, and reportedly powered by a proprietary 200cc Sachs or Jlo 2-stroke motor.

Teegan's untimely demise at 62 brought an abrupt halt to his projects, and all tooling was abandoned by the American Company, who wrote off the episode and moved into other activities.

Contrary to any impression the reader may have concluded of a fading cyclemotor being marketed by a failing company, Lohmann sold over 51,000 of the engines across a five-year period, which was no mean quantity, and surely dispels any suggestion that, however briefly, the tiniest cycle attachment engine certainly had its moment.

So having concluded our Lohmann chapter in 1962, we now seem to arrive at a natural break.

It's not uncommon for our main features to cluster different machines in a comparative article – but what could anyone fairly match with a Lohmann? There was nothing quite like it ever made at the time, or since.

Nothing else so small, or so feeble!

So what might be run with an 18cc 'diesel' engine to make a packaged feature?

No, we honestly couldn't come up with any other cyclemotor, but how about something else that might similarly represent another slowest powered vehicle on public roads in its own respective time?

It occurred to us that the 60 year old Lohmann cyclemotor might be comparable to an electric bicycle?

Intrigued? Read on...

While presenting other articles, we've incidentally encountered some odd electric powered contraptions along the way: the Winn City Bike, the Solo Electra, the Garelli Katia Electric – all small-wheeled scooter-peds, massively heavy, and generally economic disasters. There were certainly various other battery propulsion attempts, but early electrified efforts were generally held back by limited range and top heavy power to weight ratios – so let's have a look at one of these...

TGA Electrobike

Marketed by TGA Electric Leisure of Sudbury, Suffolk, the first TGA Electrobike Kit was a fairly early pioneering effort to commercially produce and market an attachable electro-booster set to a bicycle by fitting a 200W, 12V motor with integral reduction gearbox made by Electric Motor Developments (EMD) of Halstead in Essex.

Our particular Mk 1 Electrobike booster set seems to have experienced several installations over the years, coming to its present owner on a gents cycle frame as a rear mounted fixture, and driving the back wheel through a 3-speed epicyclic hub. This set-up however, failed to accommodate any pedalling capability, so left the machine stranded if the battery went flat.

Its heavy 12V lead acid car battery mounting on a frame above the rear wheel, was an awkward location, giving a high centre of gravity, and registered handling difficulties for the comparatively lightweight cycle frame.

With the gent's crossbar presenting mounting problems to its elderly rider, the motor unit was relocated to a ladies step-through frame, front-wheel driving a 3-speed hub rear wheel fitted into a splayed fork. This retains the option of three driving speeds for the motor, while a second 3-speed wheel in the back returns the same possibility to cycling assistance.



With the heavy 12V lead acid car battery and its control functions relocated to the forward basket; it's now the front-end that gives the weighty handling difficulties.

The key activated solenoid is now triggered from the right handlebar by a simple push button, which has replaced a graduated throttle control. The old 'speed control' was found to be ineffective since the machine needed to operate



at full power pretty much all the time in order to maintain pace.

In deference to risk of overloading the motor, straining the drive chain and shocking delicate sintered gears in the epicyclic gearbox, it's better to pedal the cycle up to speed then engage electric drive, just to maintain the pace. Operated in this means, the e-motor took over gently and smoothly.

Running the driving wheel in first gear generates around 8mph on the flat, up to 12mph in second gear, and up to 15mph maximum in third.

The installation was somewhat rudimentary at the time of our test, and we had to 'work around' a number of 'unfinished' aspects.

Though a healthy 12 Volt supply battery can reportedly offer a 20-mile range on a full charge, it needs to be appreciated that rider assistance will be required to build up speed and on inclines.

This early amalgam of 12 Volt propulsion motor, with a bulky and high-mounted lead acid car battery mounted on a bicycle is, to be honest, a pretty inadequate and dreadful combination. It barely matters whether such a heavy battery is located to the front or rear, since it renders the bicycle very difficult to manage, and is courting disaster when the machine falls over (and it's surely going to do that occasionally).

It's difficult to effectively date this TGA drive unit (with a notable mention that enquiries to the company found them totally disinterested and disappointingly unhelpful), but we'd probably place it around the late 1980s to early 1990s?

A 12volt system really isn't man enough for this task, and a car battery is too cumbersome for the application.

It's difficult to effectively date this TGA drive unit, but we'd probably place it around the late 1980s to early 1990s?

We think the kit may originally have been supplied with a sealed lead/acid-gel battery, but in the 1980s, any smaller and lighter battery only meant less power and less effective range.

For an electric bicycle to work as a viable proposition, is going to require something more practical than this sort of DIY improvisation.

What the e-bike needs is more power, less weight, a lower centre of gravity, and basing around a purpose-built machine rather than a common bicycle, which would probably never seem up to the job.

The Mark 1 kit was subsequently replaced by a 24V Electrobike Mark 2 version retailed as a complete bicycle, where the motor mounted beneath the main down tube of a 'shopper' cycle, and driving a secondary freewheel sprocket at the pedal crank. The motor was controlled by a graduated throttle and could be assisted at any time by normal pedalling. The rear wheel employed a conventional 3-speed hub, so the bike might develop a fair performance provided good battery condition and charge remained, though the rear carrier now had to contend with 2 x 12V sealed lead/acid-gel batteries connected in series, so the weight issue remained.

The Electrobike is believed to have become discontinued around the later 1990s.

According to urban legend, the 24V drive motor was an adaptation from a commercial vehicle windscreen wiper motor, but the further myth and mysteries regarding these machines remain unanswered since enquiries to the company only found them totally disinterested and disappointingly unhelpful.

TGA still exists as an electric mobility products company, but has long ceased involvement with cycle related products and supports no spares or information for them.

Progressing into the 21st century, electric bike technology has really been moving forward over the last decade, with advances in both motor efficiency and battery cell development...

Koolgachet e-Cycle

There doesn't seem a lot of background available on our Koolgachet e-Cycle. As far as we can tell, the bike appears to be built in Spain, with the trademark registered to Asian Pioneer Espana S.L. The cycle chassis is made from cast aluminium, while the motor hub and a number of the cycle fittings appear likely to derive from eastern origins, and the removable battery is quoted as 36V @ 12AH, with a 4hr charging time.

When Koolgachet is ridden as an ordinary bicycle with the 'ignition' keylock in the 'off' position, the single ratio proves

quite low, so it can only be pedalled up to a frantic maximum of 12mph, and around a mere 8-9mph seems the most sensible practical pace.

Switch to 'ignition on', and battery assistance comes in with a motion sensor as the pedals turn forwards (backward freewheel rotation does not enable drive). Initially it feels rather like receiving a push from behind, and the speed can be built up as long as the pedals are kept turning, to best 14mph along the flat, and paced maximum 19mph running downhill. Turning the pedals is only a no-load rotation to keep the power on, and quickly becomes a very pointless irritation to the rider.

Presumably however, there is an electrical load sensor on the motor, since the moment the cycle encounters the slightest incline, the E-motor stops contributing when the rider would seem to want it most! While this is all very good for extending the bike's range, it leaves the rider doing all the hard pedalling whenever there's any real work to do. It's like having a motor that only does the easy jobs!

E-Cycle is fitted with calliper cycle block brakes at front and rear, which prove adequate enough for the limited performance. The brakes are operated by conventional cable, but also have wires coming out from switches in the lever brackets, that cut off the power to the motor when the brake levers are pulled.

Being a folding machine, there's probably some expectation that the bike may need to be stowed into a car boot. No problem there, after a battle with the fasteners, it will fold up to fit into a confined space OK; the surprise comes when you try to lift it in.



The first attempt results in the bike staying firmly on the ground with the shock discovery that this little bike is, in fact, pretty heavy – 37kg, nearly 6 stone in real money, so little wonder that picking it up becomes a double-take! Most of this weight is, of course, the lead/acid battery, which can make the loading job easier if you separate the battery first.

Apart from Koolgachet's small wheels giving the usual impression of a rather unstable ride, the stem clamp didn't seem to lock up the folder handlebar set securely, so the whole steering head rocked disconcertingly side-to-side. We tightened this up as much as possible, which did address most of the slackness, but still didn't wholly resolve the problem, and we weren't at all convinced the assembly wouldn't come loose again. Despite tightening the saddle-stem locking clamp as much as we were able with a big pair of pliers, the stem still kept creeping down the tube as the bike was ridden, with the conclusion that these folder fasteners are probably not man enough for the job.

We also noticed several spokes missing from the rear wheel, presumably having been removed after breaking, and the rim ran out of true as a consequence. Overall, there is an impression that build quality may be a little lacking.

We had several people try the e-Cycle, and couldn't find anyone who liked it at all.

Conclusion – Koolgachet isn't cool at all, in fact, we think it's pretty naff!

If electric bicycles are going to save the planet, they've sure got to get a whole lot better than this!

Pyramid E-scooter

Decals on the rear body panel read "CTEB - Classic Electric Bicycle", but these stickers are fairly meaningless since the machine is made somewhere anonymous in the Far East, and could be bought in to any country in the world and badged up with anything the importer likes. In this case the machine is marketed by Pyramid Products Ltd. of Nottingham.

Though technically classified as an Electric Bicycle, this machine is basically an E-scooter.

It doesn't really matter what this machine might be called, or where it may originate from, because if the bike has any soul at all, it's probably made of plastic!

The cast alloy wheels are shod with 16x2.125 tyres, and powered from the rear by three series-connected 12V x 12Ah batteries, for 36V.

There are a few given specifications for reference, net weight (excluding batteries) 38kg, max speed given as 15mph, range 35 – 50km, motor power 180W and, for the scientifically minded, motor torque 8.5Nm

The drive motor is built into the rear hub, and the rest of the scooter is fully appointed with pretty much all the electrical gizmos and goodies you'd expect to find on a normal petrol-engined scooter, headlight, taillight, flashing indicators, a bleeping horn, battery charge condition meter, and power (ignition) indicator.

A speedometer in the handlebar console indicates in blue 3mph steps up to 15mph, and then continues in red 3mph steps up to 24mph.

There's a pair of handlebar mirrors fitted as standard, and a couple of intriguing stickers applied to the console moulding, "In order to reduce motor strain on starting, and on inclines, always push or pedal when starting off".

And one by the throttle: "In order to be street legal, do not disable the pedal mechanism with this red button when using the bike on the highway" ... and, under the throttle, is a red button marked "S-P".

The battery container is found by lifting the foot mat, and has a connection point to suit the charger, but you don't need to take this out for charging since there's another connection point on the frame under the front of the seat, which doesn't require disturbance of any fixtures when plugging into the socket.

The machine may look like a scooter, but its cycle basis is quite apparent in the calliper front brake that is tucked away under the front nose. Rear stopping is by a cable operated band brake unit attached to the hub. Generally, the rest of the cycle is fairly well appointed with storage capacity too, including a small locker in the front leg shield assembly, and a fitted rear rack topped with a lockable plastic box carrier.

The seat also lifts up in typical modern scooter fashion, to reveal a crash helmet style storage bin beneath, except of course that you're not obliged to wear a helmet on an e-bike, so might be considered more likely storage for the shopping.

There also seems to be yet another charging lead coming out of the rear of this compartment – how many charging points does a bike need? We make this three now!

There's also a bag in the bottom with a few supplied tools, spare fuses, a couple of screws, and a plastic moulding, so we don't know if these might be important parts that are meant to fit somewhere?

The bike very confidently mounts a dual seat and is fitted with folding back footrest plates from the rear axle, so is plainly pertaining to be suitable for carrying a passenger.

Where the 'pedal assisted' aspect really falls down is in having the cycling set fitted to a scooter body, since the pedals are played 18 inches apart, which any serious cyclist would tell you is utterly ridiculous for any proper use! Not only that, but the pedal arms are just a snap fit, retained by spring loaded bearings onto a half-inch square crank spindle, so they rather wobble about in any attempted operation.



On an initial test ride, we pedal assist away like a good little cyclist, and in the usual fashion, the electric motor kicks in as long as you keep turning the pedals. The electric motor seems arranged to deliver more power at the 3mph steps as indicated on the speedo, according to the rotation pace of the pedals. So the scooter goes quicker if you turn the pedals faster, but involves no physical effort since the motor is actually delivering all the power to push the bike along. All this no-load rotation is really pretty pointless just to keep the motor driving, so it doesn't take long before we get very bored with that. So, should we push the naughty button? It's coloured red for danger, but just asking to be pressed and find out what it does. But if press it on the public highway, we'd probably be in contravention of the EAPC regulation 1983 EU Directive 2002/24/EC, and we don't want

to risk having the full weight of European regulators bearing down upon us – so instead, we take the bike to our own personal test track, secretly located on a private estate in the quiet Suffolk countryside.

Ignition on ... pedal off in the usual manner ... the electric motor kicks in ... 6mph ... 9mph ... push the button! Ah, I see, it's disabled the requirement to keep pedalling, and you can now control the speed on the throttle in the manner of a normal scooter.

On the flat in pedal mode, the speedo can indicate up to 16mph, and on the throttle, much the same, but without the pointless nonsense of the stupid no-load pedalling.

Probably the best way to use this E-scooter is to pop off the pedals, since they're just useless rubbish, and chuck them in the back box, scoot the bike away for initial take-off, then just ride it on the throttle like a normal scooter. So, with our legs now tucked in behind the leg shield for best streamlining, sitting right back on the seat in lowest crouch, with eyes just peeping above the tiny fly screen, what's the best we might wring out of the poor little E-scooter on a long and shallow downhill run ... 18mph!

Thanks goodness we weren't trying that on the public highway, we could have frightened ourselves to death!

There's a proper motor cycle style centre stand for secure parking, the lights were reasonable, better than the average bicycle, but the rear indicators were placed too close together in a central cluster, and we felt any following vehicle probably couldn't make out which way the bike might be going.

The telescopic front and swing-arm rear suspension worked well enough for the low speeds involved.



The brakes worked adequately, though the rear stopper produced a lot of complaining creaks and groans in application.

Trying to use the E-scooter on the pedalling set was pretty awful, as the 18-inch splay was ungainly and difficult and, presuming the battery went flat in the middle of nowhere, the slack, removable arms on the cranks never felt as if they would be of any serious use for pedalling back home on.

On the plus side, this scooter appeared fairly capable of reasonable electric propulsion under its own motive power, so did feel as if the motor was making more effort than the Koolgachet.

Let's face it, if someone buys any bike with a motor, be it petrol or electric, it's because they don't really want to be pedalling much, so the sooner the regulations get over this 'pedal assisted requirement' nonsense, the sooner the electric bicycle may grow up to become some useful transport in our choking urban centres.

E-Powabyke

Our search for a better electric bike leads us onward to another machine that someone from the trade recommends ... "You want to try a Powabyke, they're pretty good".

This is obviously another Far Eastern manufactured E-bike, this time imported by Powabyke Ltd of Bath, UK.

There seem to be several models available, but we just have the basic "5 Speed Euro" model with rigid frame and rigid fork.

The chassis appears to be largely based on a modern conventional cycle design, and is not trying to be clever or

gimmicky like the Koolgachet, or pretending it's a scooter like the Pyramid. If someone is going out after an electric bicycle, then that's exactly what this is.

From headstock to saddle tube, there are three main frame rails which form a cradle in which the sealed lead-acid gel battery pack nests. The triple tubes form an excellent sturdy frame for the cycle, and the rest of the bike appears much like a robust mountain bike. There's a six-speed derailleur gear set on the rear wheel, and driven by a conventional cycle pedal set at the bottom bracket means that the rider is expected to be able to add some useful assistance to extend the vehicles range and effectiveness.

The whole Powabyke package looks much more promising already. It's taken some 150 years to develop the bicycle to the pinnacle of ergonomic efficiency that the modern cycle has become today, and its evolved functionality isn't going to be improved by pretending it's a scooter or by trendy design.

Powabyke doesn't have any speedometer, lighting set, or gimmicky indicators – it hasn't lost sight of the fact that it's basically a bicycle, so you simply fit cycle lamps.

Electric bikes are technically regulated to around 15mph performance – typical cycling pace, so you don't need anything more. You don't need a speedo to tell you whether you're doing 10 mph or 15mph because you won't be breaking any speed limits and it really doesn't matter, and you don't really need flashers since you can easily indicate with hand signals (like few cyclists seem to do anymore).

When the money you're not paying for this unnecessary marketing junk is then redirected towards producing a more effective e-bike, then the rider is likely to get a better machine.

The only 'instrumentation' on Powabyke is a 'battery charge LED indicator', which shows its level of power reserve in a graduated bar display. A practical and simple device that suggests the remaining range, and can be easily seen in the dark. The battery can be recharged on or off the bike.

Both saddle and handlebar heights are adjustable in the conventional way, so most riders should be able to adjust these to a preferred setting.

Located forward right of the battery box, the three-position ignition key switch has off; drive mode – where power is controlled by the twistgrip throttle above 2mph, below this speed the motor cuts off;



pedal mode – which gives throttle controlled assisting power while pedalling remains constant.

In 'drive mode' the range is given as 32km/20 miles, and 'pedal mode' 50km/32 miles.

The electric motor is located in the front hub and brakes are just conventional rim acting cycle callipers to front and rear. The six speed derailleur is simply switched by a single trigger on the handlebar, and offers a selection of relatively low ratios that are unlikely to much exceed the design speed of the general e-cycle, but are obviously specifically selected to best assist its working operation. It should also be appreciated that any E-bike is invariably a heavy machine, and if you may find yourself having to pedal when the battery has run down, then high ratios would likely to become quite hard work.

Weight of bike with battery is given as 38Kg (84lb or 6st if you prefer), so a fairly substantial consideration to pedal or if you're lifting the machine. You can of course use the E-bike as a normal bicycle by simply removing the battery, which reduces the weight by a third, down to 26kg (57lb or 4st).

In 'drive mode', just a fractional rotation of the pedals kicks the motor in and Powabyke pulls strongly to accelerate as the twistgrip is opened. The throttle delivers power that really convinces us that the motor is putting in some effort. Any rider wouldn't begrudge helping the motor along when it's working hard, labouring against a hill or headwind, because this bike really feels as if it's doing its share.

The Powabyke can be readily switched between 'drive' and 'pedal' positions while in motion, and a rider can always pedal assist whatever mode it's in.

Testing performance in drive mode for effective comparison, our best on flat paced at 16mph, and downhill with a tailwind made 20mph, though this was probably achieved as much by freewheeling up to speed since the motor should have stopped delivering energy beyond its design maximum.

We didn't like the saddle, which vaguely wobbled around on its springs, like sitting on a jelly!

Also while the low handlebar position may have helped reduce rider profile for lower drag, it tended to put weight on your hands, so particularly feeling the shock from road bumps, and readily induced tiring of the arms.

BM Freedom E-bike

Maybe this will be the last of the E-bike tests in this particular feature, since this brand new BM Freedom is pretty much the latest thing in Lithium-Ion battery technology.

Li is currently being popularly heralded as the great new battery technology due to its lightness and fast charge abilities, but only time will tell whether it might just bring along a whole new load of problems regarding environmental disposal of its toxic compounds, or the occasional spontaneous combustion of some of Li's suicidal electrical systems.

Passing all of the peripheral political issues by, since we're really only here to look at the bike...

The 'Freedom' cycle chassis is a typical modern construction formed lightweight alloy, this version being a folding step-through configuration, though other frame styles are available in the range.

The drive motor is built into the rear hub, but is assisted by a 7-speed Shimano derailleur gear set. The handlebar trigger to operate the gear change is pretty neat, you pull a trigger to change down the range, but just push a button to progressively change up one gear at a time. The simple and easy selection method probably goes towards some incentive for the rider to actually use the system rather than leave it in just one generally acceptable gear.

The Li battery pack runs up behind the saddle stem tube, and has a key switch at the top for off/on, and a charging point socket. At the top of the battery pack there's a row of indicators on a small panel, activated by pressing an adjacent button, which lights up to four green LEDs to indicate the level of charge within the battery.

The 36V LiFePO4 battery is rated 10Ah, and described as a new type claiming a 10-year effective life and capable of appreciably more charging cycles than first-generation Li cells. The new Lithium Ion Ferrite cell is also being claimed to resolve the spontaneous 'bursting into flames' problems of the early Li systems, so we're feeling a little more comforted by that news.

There's another small control panel on the left handlebar, which comes up with LED illumination to indicate +/- switchable motor assistance levels of low/medium/high according to whether the rider may wish to contribute more or less cycling effort, which will affect the vehicle range.

There's also what appears to be further battery health indicator constantly displaying on the control panel in up to four illuminated red LEDs, so the rider remains conscious of the bike's capacity.

There's another button on the panel, which turns on and off the LED headlight, which seems to operate from the Li battery set. The back light is separately switched on/off underneath the rear lamp, and has no visible wiring, so we presume this to operate from its own internal battery. The lights are supplied as standard equipment.

Under the right handle grip is a red button, which UK law would probably call the naughty button, since by clicking this, you can change from 'pedal assisted mode' to the 'technically illegal in the UK' throttle mode.

This is a peculiar arrangement, with the inner half of the twistgrip rotating to control the throttle, and the outer half remaining stationary like a fixed grip. Quite honestly it's pretty stupid to operate, and we really can't figure out any sensible reasoning behind it.



The calliper front brake creaks and complains in operation, but the rear calliper brake seems to work better, and without any protests.

The front fork has a shock absorption suspension system, which works very well to absorb front end jolts, and is a noticeable improvement over any rigid fork set.

The rear cycle frame is rigid, with a tidy little side stand fitted off the rear axle. The prop-leg works very effectively to stand the bike, so it's not just for show.

Having assessed our steed, and investigated and fiddled with the buttons, it's time to give it a go.

Click on the ignition, mount up, and pedal away in 'low' mode. The motor kicks in behind your pedalling, but if you stop rotating the pedals, the motor cuts out too.

We switch up to 'medium', then to 'high', which both still require pedal rotation to maintain the E-motor delivery; it's just that the motor delivers its power harder and more readily in the higher positions.

Number 20



Probably the most annoying aspect to usage in pedal mode is the way the E-motor delivery comes in a series of punches.

You receive a punch of power, which pushes the rider faster than the constant pedalling speed, so the motor cuts off again, then as loaded pedalling returns to the cyclist, the system delivers another electric punch. The effect is that you feel like you're going down the road in a series of lurches.

The 'throttle'

button turns on the twistgrip, so you can now smoothly control the speed motor cycle style, and without the relative nonsense of no-load pedalling, though you can still pedal to boost the machine if required to help on an incline, etc.

If the bike is stationary in throttle mode, any twist on the grip will find it eagerly snatching to accelerate whether you're on or off the bike, so it's a bit like an automatic scooter where you can't really blip the throttle. The only difference with a motor scooter is that you are reminded of this by the sound of a running engine. The E-bike is completely

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noiseless, so it may seem a bit odd that it reacts so silently.

We were quite impressed the way Freedom would accelerate on the E-motor, and did feel as if it covered the same ground a bit quicker than our previous electric bikes, but the Freedom has no speedometer to present any suggestion of its performance. Perhaps it might have been delivering toward the upper end of the 14 – 16mph specification? The light downhill run felt fast too, and the E-motor delivered quite good power to make a useful effort against an incline. The 7-gear range allowed the rider to easily select an ideal ratio to work with the bike against different inclines, so it was natural to feel you could be pedalling with the machine if you wanted to assist, or be its master and make it do the work if you preferred.

On returning to base our tracking vehicle reported a paced top speed of 20mph along the flat and the same 20mph on the light downhill run. This slightly better than expected performance might be explained in that European electric bike specification for on-road use now seems to be rated as 250 Watt power rather than qualifying a speed limit, so more efficient motors may be able to achieve slightly better performance within the specification.

There's also a more powerful 350 Watt version specifically designated for off-road use only, so nobody would be ever be using one of those on the public highway now, would they?

The other remarkable thing about the Li-bike is the weight, or rather the relative lack of weight. Unlike all the other 'ten-ton' lead-acid gel battery machines, you can very easily lift the Freedom for practical handling. This makes its folder function even more sensible, since you can readily lift the

bike in and out of the back of a car without the need for a crane!

We stuck Freedom on the scales and it weighed just 3st 12lb, 54lb if you like payment in Pounds, or 24.5kg for the rest of the Continent who may only relate to Eurometrication.

So, might the modern E-bike be considered a latter day Lohmann?

From very different generations, the two machines perform fairly comparably.

The E-bike is probably cleaner and easier to use, but will any of them still be working over half a decade later, and will any E-bike ever achieve the curious charisma of the world's tiniest clip-on engine?

Dating around 1953 makes our Lohmann cyclemotor nearly 60 years old at the time of test, and still working fine – but would any electric cycle still be working at that age? Would a replacement battery even be available when the original expired, and would the ailing cycle chassis even be worth buying one for at further extortionate cost? This all seems rather unlikely. Electrical technology is moving on so quickly that any generation of electric bikes seems likely to be headed for the bin within the same decade.

It'd be very hard to imagine any present day E-bike rider ever coming to terms with the dirty fuel mixing and challenging control processes involved in operating a Lohmann. The modern electric bicycle is certainly much cleaner, more practical, efficient and easy to use than the antique cyclemotor – but is any E-bike ever going to achieve the legendary and mystical fascination of Lohmann's 18cc 'Diesel'?

No, off course it isn't, all modern E-bikes are going to be nothing more than disposable technology.

Lohmann cyclemotors in reasonable working order may now be fetching similar prices to a brand new electric bike, but the sixty year old Lohmann is probably the better investment.



Next – Far out, in the cold black gulf of space, great celestial bodies move relentlessly in their eternal orbits.

Planetary alignments are approaching perihelion point when we are going to be closer to this tiny globe than for many years, so maybe it's time to prepare for another journey across the void.

The prophets say this sign is moving into retrograde, and stars foretell an end of the world – could this be the last mission as the planet plunges toward the sun in a glorious final dive?

Mercury boils at just 357°C, and this might be “Meltdown”.

Mini Sixteen

by Mark Daniels

Sponsored by Graham McLean – IcenicAM reader, Victoria, Australia.

Once again, another of those odd twists of fate that dog our tracks has conspired to turn up a bike mentioned in an earlier presentation, so we find ourselves obliged to follow up the feature to rest its wandering spirit. This story however, seems to start with a bike that never was...

September 1965 found the pages of *Power & Pedal* magazine presenting a feature on a new Motobi 'Economica' moped. The timing of this promotional announcement was probably planned by Europa Imports concessionaires shortly before an intended formal introduction of the machine at that year's Earls Court Show in November.

Being an automatic commuter model, the bike was unflatteringly described as “not a particularly sleek looking, open-frame machine” of 40mm bore × 39mm stroke, for 48cc, and producing 2.5bhp @ 6,000rpm. Mounting telescopic forks, the rigid-rear

frame ran on 2.00 × 18 wheels, with 6V × 17W lighting set, plastic one-piece chainguard/frame trim, and moulded leg shield set (optional extra, £4).

The report particularly praised the “usable power” of the horizontally arranged Benelli engine, describing “nearly 40mph top speed”, and “superb road holding”.

The Economica sounded a most excellent little machine and, being “jolly good value at 57 guineas”, was predicted as “certainly going to be big seller” – but this was seemingly not to be, since the model failed to achieve any listing entry, and was never heard of again.

A POWERFUL AUTOMATIC UNDER £60!

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STURDY telescopic forks; effective FF wire hood; (emb: electric horn; adjustable fenders; powerful brakes.

COMFORTABLE big saddle (adjustable, too. 20 in approx); tool bag; carrier; gallon fuel tank; sturdy stand.

SIMPLE wet automatic power unit (prefuses 2½ hp); tank swivel over engine and twin chain.

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 Please send details of Scooter Model.
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 ADDRESS

Beyond the text description, the accompanying picture didn't really reveal much since plastic coverings concealed most of the engine detail, so apart from the distinctive and quirky 'bubble' petrol tank below the saddle, the bike remained largely a mystery.

Following on from our earlier Motobi article 'Not an Egg' in April 2010, and quoting a passage from the text; “Glass’s Index shows a ‘Mini 16’ (whatever that may be?), added to Europa Imports listings for 1966”.

At that time the Mini 16 was left as no more than a question, since beyond the Glass’s entry, we’d not found any further references among the library files, but would now appear to have fallen upon an example that seems to be not only this elusive machine, but also seems to be a derivative of the lost Economica!

Looking round our odd automatic Motobi, the distinctive hooped rear forks and bubble tank unmistakably match the Economica, but this machine wears 2.50 × 16 wheels instead, hence the Mini 16 conclusion. The frame however appears unchanged, since the smaller wheels seem to leave a larger gap within the mudguards.

Apart from a white finished petrol tank, and now mounting a light plastic headlamp in place of the pressed metal shell of the Economica, everything else appears much the same.



It’s presumed the factory may have shortened the centre stand legs to maintain a more acceptable parking clearance, and our weathered example has lost its plastic chain guard and trim to an improvised alloy chain guard and chequer pattern footplates to dress the frame.

Now revealed, the blank-sided fin pattern of the alloy cylinder head and iron barrel are somewhat reminiscent of the Moto-Guzzi Motoleggera, while apart from the horizontal layout, the rest of the motor much resembles the general appearance of the period Benelli vertical cylinder types.

It’s most unusual to see machines with the main drive and pedal chains both running on the same side. The only other examples that readily come to mind being the Raleigh RM1 and RM2 models (which transmission runs on the right by means of a crossover shaft for the main drive), and the Derbi Antorcha.

Like the Derbi, our Motobi runs both its transmission chains out on the left!

Any cyclist readers will probably immediately appreciate the implications of this ‘wrong sided’ arrangement, as the pedal freewheel is rather likely to be a special left-hand thread. Replacement of such a unique component would probably present some most considerable difficulty.



For starting, the budget petrol tap lever rotates in quarters, 3-o'clock off, 6-o'clock on, 9-o'clock off again. We did check, and there's definitely no reserve.

Carburetion is by a conventional and familiar Dell'orto SH12-14, so click down the choke, which will snap off automatically when the throttle is opened full.

Just turning the pedals fails to spin the motor, so on typical unit automatics we'd normally be looking for some clutch lock lever under the left handlebar cluster, but there doesn't appear to be one?

There is however, what appears to be a gear-change twistgrip, with a cable running down to the motor! What's going on here? We check the left hand lever – no, it's definitely the back brake, not a clutch. The brake lever turns as the grip rotates, which then seems to load-up the mystery cable without any feeling of engaging a gear. Holding the grip round, we try the pedals, and now the engine turns!

It looks as if Benelli decided to use a gear-change twistgrip to operate the clutch-lock starting function, instead of a

second lever! You do, though, need to twist the grip around very hard to prevent the plates slipping against compression, and this proves more effectively operated by pulling round the brake lever instead. Probably not quite how the maker intended, but saves straining your wrist, so, another neat idea that doesn't really work – no surprise we've never seen it previously, on any machine, before or since.

A couple of spins and the motor fires up, and sounding immediately responsive, so open up the throttle to release the choke – and it's still responsive, surprisingly ready and willing almost straight away. OK then, away we go...

The automatic single-speed motor pulls strongly and steadily right from take-off, up to comfortable cruising just under 30mph. We sit at this settled pace for a while, to work some heat into the engine, which seems contented enough coasting along beneath the urban limit...



Now, bearing in mind this is an innocuous automatic commuter moped around the late 1960s, so from a sub-30 cruising speed, you might be expecting to open the throttle, and slowly limp your way up to maybe a fraction over 30 if you're lucky, then that'd be your lot – but there's a surprise punch! Open up the throttle more, and there's still loads of twist left in the grip!

The Benelli engine eagerly responds to power the bike up to a paced 37mph on the flat with rider crouched. Still keen to get on and rev, the motor urged onwards up to a 40mph paced maximum on the downhill run, then charged enthusiastically at the incline on the other side, to blaze the crest at a most creditable 27mph.

For a single-speed auto moped, Mini 16 demonstrated a pretty impressive performance throughout the test. The gutsy and willing 2.5bhp Benelli motor is what allows this little bike to punch well above its weight and, to put this rating into context for

the time, consider Motobécane's AV89 based Sport Spéciale 50 model was given at 2.67bhp, and a top machine of the day, so Motobi gave a most remarkable showing for a basic commuter moped.

The French 60mph Huret might seem a somewhat unexpected instrument to find on an Italian moped, but maybe not if the machine was marketed without a speedometer, which was then added as an accessory after importation. Since continental machines normally indicate kilometres, this would seem fairly likely for a British market bike.

Speedo indications compared reasonably to the pace bike on this occasion – seemingly one of Huret's better days!

Despite a rigid rear frame, the 2.50 × 16 wheels worked well for the handling and Mini 16 could be flicked through speed-cornering with a high level of confidence.

The small wheels also contribute to produce quite a compact chassis, with a short 42½-inch wheelbase and total length of just 66 inches. The saddle height will set down to a lowly 30 inches, so this is quite a physically small moped compared to many of its period contemporaries.

The padded, sprung frame of the Giuliari single saddle gave a fairly comfortable seat.

A five-way handlebar switch conventionally operates horn and engine cutout, but while the lighting switch starts from central-off, the expected dip position only engages a rather dull 'festoon' sidelight bulb. The headlight 'beam' produced far brighter illumination than might have been expected from its 15W lamp, but was not reflected by the dim glow from the large red lens of the circular CEV 3W rear unit.

The only observable criticisms certainly being difficulty in twisting round the left grip hard enough to engage the

starting clutch, and reference to rather noticeable mechanical running noise, which seemed to emanate from the transmission (left) side, though would probably have been far less apparent on a machine retaining its original plastic shielding set.

Probably overlooked for its odd-looking petrol tank and basic step-through arrangement, Mini 16 was actually a great, all-round, commuter moped. Its strong acceleration proved really good for keeping up with traffic pace in an urban transport role, and was completely un-fazed by hills, which it galloped up at a most determined pace.

Probably cost led, since smaller size = less materials, a trend toward smaller wheels was gathering pace into the early 1960s. From the generally more common 26" or 23" (19" rim) sizes of the 1950s, the next decade certainly found progressively smaller wheel sizes appearing on mopeds. Mobylette AV89 models introduced 18" rim sizes, and 12" rims on the Raleigh Wisp and Clark Scamp. Italian 17" & 16" rims were relatively new to mopeds at the time of the Motobi Mini 16, so Benelli were probably among the earliest of manufacturers adapting the size onto the Economica.

Another variation of the Economica/Mini 16 theme was released onto the Dutch market in 1966, titled as the 'Gentleman' model and sold on the continent under the Benelli brand.

Europa Imports remained with the same 'under 100' line-up of 'Automatic', Mini-16, 48 Moped, 48 Sport, Texan, Fabulous 48, and 98 Scooter, until UK imports stopped in September 1968, after its Motobi branded models failed to achieve any competitive levels of sales.

The Motobi brand was revived in 2010, by Austrian company Michael Leeb Trading GmbH in partnership with Demharter GmbH, selling a range of 50 cc scooters, and providing sponsorship for the JiR motor cycle racing team in the Moto2 competition class.



Next - We make a lot of efforts in tracking down and testing the most obscure machines for features, which is all very well, as long as examples survive – but what to do if nothing exists? We can never test a bike that's actually extinct, but another form of presentation may still be possible. Way back in 2004, a research series was started on several machines, all of which were firmly believed to be extinct – no traceable examples survive.

Quite a bit of work was done, but the series never progressed to completion due to political issues within the dismal old autocycle club (a situation that sadly still continues today).

These research notes turned up again recently as a number of old files, and it might seem a pity to simply mothball the work again, so we thought we might try to complete one from time to time as a bit of a change.

The old research series was titled "Legions of the Lost", and the first analysis presents a final solution to a moped that never was.

Squire' Mini bike: An interview with 'Mike'

by George Smith

Well, I guess the first SIM was what spurred me on to look for unusual 50cc mini bikes ... and look where that got the magazine: pages and pages of info.

I came across this little Squire on eBay and bought it. I had first trawled the Internet at length for any information, but all I found were queries going back to 2005. The first clue

was that it has "Squire" on the rear seat area. Not the logo that Squire used officially by Watsonian-Squire, more a block type, so was it a Squire? I ended up on a Mini bike forum in the USA where someone said they had one but, not being a member, I couldn't see the picture. He had also mentioned that Watsonian-Squire had e-mailed him and said they were instrumental in the manufacture. I joined, brought up the



picture, and it was indeed the same as mine.

I guess the only thing to do would be to e-mail or ring Watsonian-Squire. I had an e-mail next day saying "please ring me for more info, Mike". 'Mike' was unstinting in his information and was decent enough to answer, without hesitation all the questions I asked. Although this

following is not transcribed word for word, the content is accurate. It did catch me unawares that he would want to talk so freely, and really I ran out of questions!

Mike, why were they made?

The Yamaha PW50 was out there being sold in great numbers, but also being left out in all weathers, and they were a little flimsy for this treatment. We (Mike and partner) thought there was a market for a more robust, simple, cleaner looking mini bike for youngsters. This was late 70s

Whose brainchild was it?

Myself and partner.

What does 'PRV' stand for?

Nothing, we just liked that combination of letters [!]

How did they sell?

Well, it was also our first venture into laser cutting. We were manufacturing these late '70s and marketing early '80s. Unfortunately the recession came in quicker than anyone expected, and then Peugeot doubled the price of the engines, and that was that.

What engine was it then?

Peugeot 103, 50cc

I have seen there is one on the USA site that has a tubular, square looking frame, similar to a lot of their 'Tecumseh' engine mini bikes, but mine has a sloping top tube. Were there two models for two markets?

No, the 'USA' styled ones, as you call it, were the earlier models, but we realised that the USA's own models like this, with pull start industrial engines were quite raw and brutal. We decided to make it more genteel and appealing by redesigning the style.



So, what you are saying is that the machine needed to be aimed at a child's market. More 'round the garden' than 'round the WW2 Airfield' (laugh)?

Yes.

I have heard the name 'Squirrel' mentioned.

Yes, the earlier one was called the Squirrel [Squire Squirrel seems to work? GS] but the later one was called the PRV. As I remember, Bruce Preston's wife called it the Squirrel. [Bruce Preston was a prolific writer of all things motor cycle for various magazines and a BMF stalwart. GS]

Mike, do you happen to know how many all told, were made?

450 (instantly, end of answer)

One last question, do you ever see any?

Oh, yes they pop up now and again, my friend still has his original one and it's on the 2nd, (or is it 3rd?) generation of children.

I have now run out of questions. I would have asked “were the fibreglass bits made in house?”, but that would have been pretty naive, of course they were. I could have asked where the wheels originated, but my seller showed me a caravan jockey wheel of the day almost identical, tyre the same and everything. I didn’t have to ask about the brakes, there aren’t any. A de-compressor lever, looking very much like a bicycle front brake lever, is all you have to slow down the little bike. Probably with a loud sucking sound, as they do.

An engine, two wheels, a frame and some fibreglass was all you got with this little gem.

Incidentally, mine was originally recovered from a Council tip by someone who had the ‘rights’ to any metal going in there. I notice the one in the Suzuki Owners Club forum was a similar find. Hanging’s too good for these mechanical vandals!

With sincere thanks to ‘Mike’, a delightful man who has filled in the information on another one of the UK’s cottage industry motor cycles.

Micro Solution

by Mark Daniels

*Sponsored by Simon Taylor,
Suffolk Section EACC.*

It’s not hard to follow some reasoning that leads to the creation of micro machines...

Design brief: a motor vehicle that can be readily stowed in the back of car and be functional for short distance transport.

Anyone can perceive the appeal of such a device, so it’s just a matter of making an attractive machine that would catch the eye and open the wallet.

There are conclusions that would probably narrow down what such a vehicle might be at any point in time – obviously as light and small as possible, and probably collapsible, to reduce to a compact size.

Presuming this time might be the 1970s, and the smallest practical transport would be 50cc, so we’ve logically arrived at a small folding moped, then you’ve got to accommodate fashionable styling of the day if you want to sell the product.

The X1 was originally produced for the 1971 Paris Motor Show but, as is often the case in the world of marketing, this was not really any idea that hadn’t sort of been done before and it’s easy to perceive similarities to the early 1950s’ Brockhouse Corgi, possibly the Piatti scooter a decade later, and maybe toward the later 1960s’ Raleigh Wisp. These machines are all probably considered small icons of their own times, and styling of the X1 was surely as iconic for this moment as its predecessors were in their own generations.

Motobécane introduced the X1 into the UK in May 1973, and its striking modern looks certainly created a sensational impression at the time. This little bike just screams classic 1970s’ design, and it’s really not hard to see why it generates almost cult appeal to followers of the micro-bike fashion.

Weight is critical for X1 since its purpose relies on being lifted into the back of a car by means of a suitcase style handle along the top frame tube.

All fittings are purposefully kept as simple as they can possibly be. The rigid frame and forks minimise on metalwork, the 2.50 × 9 tyres on cast alloy wheels are about as small as they could possibly be, with lightweight plastic mouldings employed for the front mudguard, body shell halves, and die-cut poly sheet for the internal rear mudguard.

The handlebars lock into position by a cam-lever on the steering head, then a spring-loaded pin runs in a groove to keep the handlebars central to the stem. Draw the knob to fold down the 16-inch high handlebars, and they hinge right down from a 39-inch riding position to straddle the main body shell.

Purpose of the peculiar pull-back bar form becomes appreciably more obvious in folded mode, as any conventional handlebar arrangement would stick out and compromise stowage ability.

Saddle height is locked by a screw clamp on the seat stem, then telescope the stem down and into the frame. From 35 inches at maximum extension, the seat will close down to a highest point of just 24 inches.

For loading, the 35-inch wheelbase results in just 51 inches nose to tail length, and raising the total deadweight of 77lb, the bike remains in perfect balance on the lifting handle.

Despite their small size, the 70mm diameter hubs offer tremendous stopping ability in the tiny 9-inch wheels, so much so that the front brake needs to include an antilock feature as the cable pressure is regulated by a compression spring acting on the sheath.

A Motobécane Cady motor lies at X1’s beating heart – an interesting choice of engine offering miserable performance with wretched serviceability issues to the ignition set, and presumably selected on the basis that the model was probably never intended for speed.

The rotary throttle control is most unusual for Motobécane, since pretty much every other moped model they produce employs a cursor throttle. The rotary throttle, and in fact all the rest of the handlebar furniture (brake levers and even handle grips) are



further unique in mounting on to 5/8" (16mm) bars! For some unfathomable reason, the X1 handlebars taper from a conventional 7/8" (22mm) from halfway up the stems, to this tiny diameter at their top!

There seems no logical reason for this at all, so can only be put down to some inexplicable French styling fetish – it's certainly going to present major problems to anyone looking for spare parts!

The petrol tap is tucked down by the engine behind the LH side panel, where it's fairly difficult to access and operate the lever: off/on/reserve.

A thumb lever operates the choke by cable from the LH handlebar. Turn the throttle twistgrip forward to decompress and, in deference to the dainty little stand that's obviously not going to recommend sitting on the bike and furiously winding it up, we considerably opt for the flying start technique and pedal down the road.

Whether down to the pedal drive ratio or some anomaly in the starter clutch, it proves pretty hard work to get the motor turning enough to fire it up, but we persist and the Cady putters quietly into life. Further thumbing the choke briefly until the engine runs clear on its own, we open the throttle to pull away...

Not quite what you might ordinarily describe as acceleration...

To be honest, it's pretty pathetic, and you really do need to give a little pedal assistance or you might be at the kerb all day! The clutch locking shoes seem to engage somewhat prematurely, and the feeble Cady motor just labours in vain at low revs.

Pedal assistance also needs to be something for cautious consideration, since the pedal arc takes them fairly close to the ground, there's not much free clearance, so you might be in danger of hitting your feet – that can really hurt, and cause a further painful spill.

Once you've got underway, there's a brief illusionary moment where you optimistically think "maybe it's picking up now" – no it isn't! That's all there is!

Along the flat and according to wind conditions, the Cady will generally grovel up to 15 – 18mph, maybe even touch 19 or 20 with a decent tailwind on a good day. Even gentle gradients just seem too much effort for the indolent motor, which readily fades down to 13mph in a general performance that seems more comparable with ancient and primitive cyclemotors of the 1950s.

Turning back the way we came, the same light downhill run gave our best paced reading of 22mph.

From the riding position, and looking down on the retro 70s' missile bodywork may conjure some rocket jockey image, but the reality of Cady's engine performance is a sobering illusion – not for nothing is the white X1 more commonly known as "The Albino Slug".

Anyone getting on an X1 is generally going to be thinking there's something rather wrong with its motor, but no, everything is normal, that's just how the Cady engine is. The 'blank' right hand crankcase cover pretty much gives away that the motor has an overhung crank. The drive journal on the LH side runs a smaller version of the usual Dimoby automatic clutch, with inboard pulley and belt guarded by a snap-fit plastic cover. The magset, however, is mounted between drive pulley and the engine, which means you have to remove the clutch in order to service the contact points – and rather tends to be a bit of a service issue!

The exhaust pipe exits to the RH side front of the cylinder, while the inlet manifold enters to LH side front of the cylinder, with the pipe snaking its way back around the cylinder, where a 10mm Gurtner carb mounts at the back RHS. An 11" (270mm) long intake manifold on a two-stroke is obviously not going to help its performance, when nearly half of the induction volume of each stroke is lost in the inlet manifold.



The engine configuration is generally summed up as “why on Earth did they do that?”

The earliest Cady versions were designated M1 and introduced by Motobécane in 1965 as their most basic machine to compete with the low cost VéloSoleX.

Inside the barrel, the inlet is piston-ported, and there are two conventional transfer ports at the sides of the cylinder, with an extra ‘boost’ port that feeds through the piston at the back of the cylinder. The exhaust and transfer ports are all pretty small, so effectively prevent the motor from developing any high revs.

The Cady engine went through a number of evolutions, its prototype having a conventional crank with two bearings.

The first production models had an overhung crank and a single bearing with two seals and packed with special, petrol-proof grease, about which there are dire warnings in the manuals:

Firstly, not to use a piston stop when removing the clutch.

Secondly, only to replace the bearing with one supplied by Motobécane, because ones from other suppliers won't have the right grease in them. This system was used to July 1967.

After July 1967 (maybe quite a while after, since there was a strike at the factory), a needle roller was fitted in addition to the ball race. From September 1970, the outer sleeve of the needle roller was cast into the crankcase, so they then had to supply the needle bearings in five different sizes at 2 micron increments.

Letters

Dear Mark,

Thanks very much for the hard copy of your article about the "Front Wheel Drive" cyclemotor. I haven't digested it all yet but I appreciate the generous appreciation and acknowledgement of the small part I played. Thank you. I know several chaps who will be interested and I shall circulate the article to them.

I am glad I could be of use.

Number 20

A later version of the Cady - the M3 - had a proper ‘super isodyne’ 2-bearing crank but the M1 and X1 models continued with the overhung crank. There doesn't appear to be much ready reference about power output, but both M1 and X1 quoted a maximum design speed of 33km/h (about 20mph).

Motobécane's idea of producing a ‘portable moped’ pre-dated the X1. The PliCady M1P was launched in 1966. This could be dismantled by removing the forks, handlebars and seat. Its brakes were arranged the ‘wrong way round’: the rear being controlled by the RH lever so the twist-grip and lever assembly could be taken off the bars and stayed with the frame to save having to disconnect any cables when ‘folding’ the bike.

The Cady was first imported to the UK in November 1966.

X1 lighting equipment is very simple and basic: a Soubitez single-filament headlamp mounted between the handlebars, and ULO taillight, both with lightweight plastic housings. Operated by a single switch on the top of the headlamp, the 6V AC lights prove quite adequate for the 20mph performance.

Operated by a tiny metal button, delicately styled into the LH brake lever bracket, the electric horn produces a raspy buzzy rattle, which is adequate to satisfy transport testing requirements.

The X1 was joined by the X7 model from January 1974, which was installed with the more conventional 2bhp M-series motor, and offered the potential of more typical moped performance.

It's commonly presumed that the X1 and X7 models are the same machine just fitted with different engines, but not so. Stand them side by side and the X7 dwarfs the X1. Though similarly styled, X7 has a different frame, telescopic forks, bigger 10-inch wheels, all the panel mouldings are larger – there's actually no component commonality at all.

Time however, was very brief for both machines. Their moment quickly passed, and both were discontinued in March 1976.

Parts are a big problem for surviving examples of X1 machines today, since virtually everything on them was unique to the model and practically nothing else will fit. Tyres are probably the single most critical item to keeping these vehicles roadworthy, since no manufacturer currently seems to list any 9-inch sizes.



Next - The oddball third feature seems to be heading into some bizarre, post-nuclear, apocalyptic future with this speed crazed warrior from the Anglian wastelands. Has the humble Puch that everyone knows and loves, become irradiated into some twisted demonic mutation? The innocuous and faithful Maxi may never be seen in the same light again, after – “Mad Max”!

*Yours sincerely,
John Barker,*

Hi,

I was wondering if there was a particular reason for the majority of cyclemotor clubs & runs being in East Anglia? Those of us in Somerset have a lack of organised events to attend and, being 16, I can't organise them myself!

Geoff

Well that's it: another Icenic CAM Magazine rolls off the presses. As always, Andrew Pattle calls himself the editor, keeping all the interesting work for himself, leaving Mark Daniels to write it all. You can contact us by e-mail at icenicam@ukfsn.org (that goes to Andrew), by post at 52b Levington Lane, Bucklesham, IPSWICH, IP10 0DZ, GB (that goes to Mark), or by 'phone at +44 (0)1449 673943 (Andrew) or +44 (0)1473 659607 (Mark)