The Oz Vincent Review

Edition #50, May 2018

The Oz Vincent Review is a totally independent, non-profit, *e*-Zine about the classic British motorcycling scene with a focus all things Vincent. OVR, distributed free of charge to its readers, may be contacted by email at OVR@optusnet.com.au

2018
&
Vincent Sets Another World Record!

Welcome

Welcome to the latest edition of The Oz Vincent Review. It's a time of records, on the front cover is no ordinary Vincent. It's an ultra-rare Black Lightning, which was the ultra-exotic, lightweight, racing version of the more familiar Black Shadow.

Built to order and distinguished from the Shadow by its racing rearsets, rims, magnesium brake plates, solo seat and more, the Lightning was the most exotic and rare version of the world's then best superbike. Just 33 were built of which only 19 matching-numbers examples survive. This unrestored, five owner, 1951 machine, originally built for Australian racer Tony MacAlpine, and which has covered just 8500kms, is probably the best in existence.

After being sold by MacAlpine it was bought by dealer and racer Jack Ehret who later claimed the Australian land speed record on the machine, hitting 141.5mph.

The Vincent was the highlight of Bonhams annual star-studded Las Vegas Motorcycle Auction, which took place on Thursday January 25th 2018 at the Rio All-Suite Hotel and Casino. Its sale price of US$929,000 (or £651,715) makes it the most valuable motorcycle ever sold at auction. According to Bonhams' Ben Walker there were "cheers and applause" in the packed ballroom when auctioneer Malcolm Barber brought down his gavel. Click ON THIS TEXT to watch the video of the auction.

For those with Vincent oil in their veins in this 50th edition of OVR we also continue the serialisation of the Series "A" Owner's manual. Plus there is loads of other stuff to keep you entertained.

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Letters To The Editor

A very brief comment on OVR 49:
Ref : Neil Videan's idea of extra slots on the pushrod tube nuts. The chopped Shadow engine shoe-horned into my Seeley-Vincent was fitted, in 1982 (or thereabouts), with nuts with eight slots - and they're still a bugger to tighten!

Tim Kirker, England

Martyn,
Time flies, next month is the 50th OVR, superb effort. Just looked at Comet prices, 50 months back half price on to days value, keep the good work up

David Bowen ex of Stevenage

Another Million Dollar Bike?

An OVR contribution from Peter Drakeford, Australia.

What was just a tool for Jack Ehret to gain an Australian land speed record in 1953 has now transformed into a new record-breaking item – the most expensive motorcycle in the world. What distinguished this Vincent from it's brothers is that it has a history. Stripping down a similar Vincent Black Lightning to record breaking specs won't get you the same price at Shannons; you'll need that magic pixie dust that clouds the eyes of the rabid Vincent enthusiast.

But, there are some noteworthy modified Vincents that could be brothers to the Ehret bike; and one in particular came out at the Shannons Insurance Broadford Bike Bonanza this year – where it was seen and heard.

Engineer, pattern maker, designer, manufacturer, recreator and the genius behind the new Series A Vincent (readily available for a third of the price of the Ehret bike,) Neal Videan of suburban, Victoria, Australia; has such a machine.

It's a Series C Black Shadow that has been stretched, ported, re-carburetted, retro suspended, strengthened internally, reframed and supercharged with an Eldred Norman blower hanging off the front LHS forward of the engine.

It's a sprint or drag bike, and the builder, Australian Vincent engineer and enthusiast Bob Satterly used it in events at the iconic Calder Raceway in Victoria and Salisbury in South Australia. When Bob left Australia to work in Asia in 1972 it was mothballed until he returned 26 years later, by then he says he was 'too old for this nonsense' and the bike was returned to road trim.

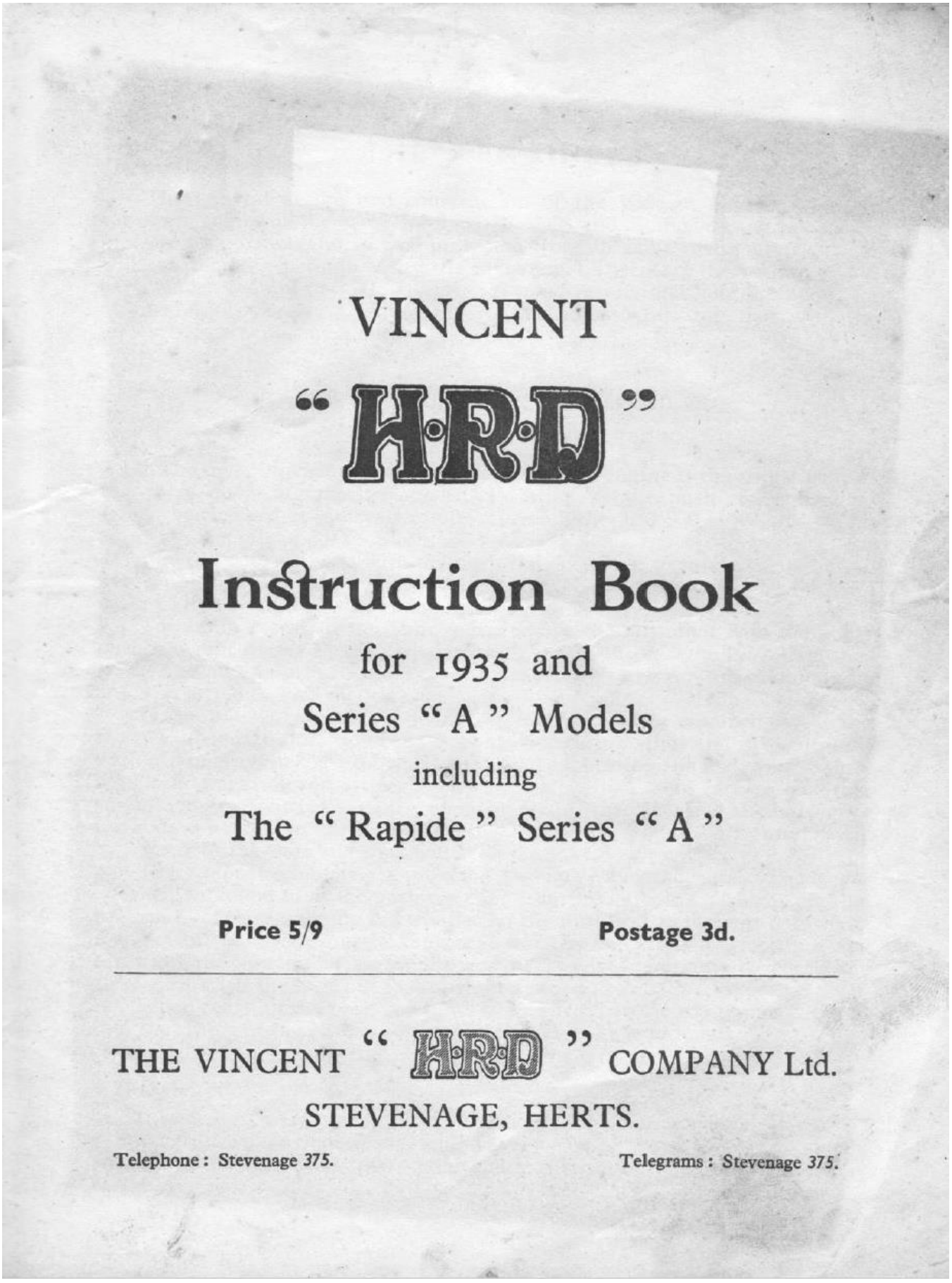
Here is where Neal stepped in. Hearing it might be for sale he visited Bob and knowing its history and having enough road Vincents of his own, he inquired about where the bits for the sprint bike were. Bob went over to a 44-gallon drum of scrap metal bits and pulled out the tubular backbone frame. Ferreting around the workshop they found most of the other bits necessary to complete the bike and so a deal was struck.

Bob would rebuild the blown sprint bike and Neal would buy it. Done deal.

The bike that Bob bought for fifty quid in 1961 as a non-runner from a frustrated owner has morphed into a machine sprinkled with that pixie dust that blinds the eye and clouds the mind of the believers. Seen and heard at Broadford; Is this magnificent machine, just like the Ehret Lightning about to slip into that rarefied level of unobtainium?

Thanks to the generosity of Lou from Australia, OVR is able to bring to you in a serialised form, a reproduction of the Vincent H.R.D. Instruction Book for the Series A, originally published almost 80 years past.

This is the second instalment – more to follow in subsequent OVR editions.



VINCENT

"H·R·D"

Instruction Book

for 1935 and

Series "A" Models

including

The "Rapide" Series "A"

Price 5/9 **Postage 3d.**

THE VINCENT "H·R·D" COMPANY Ltd.

STEVENAGE, HERTS.

Telephone: Stevenage 375. Telegrams: Stevenage 375.

When the nuts are tight, support the heads of the bolts with the nose of a pair of pliers, or any other suitable instrument, and lightly rivet the heads of the bolts, having previously cut off any excess bolt so that it projects only about $\frac{1}{16}$" beyond the nut. Make sure that this operation is carefully done, because if the rivetting is too hard it may strip the thread of the bolt by forcing it through the nut.

It is very advisable to check the tight fit of these washers at regular intervals, as considerable damage can be caused if they work loose and allow the valve to drop into the cylinder. Experts with the soldering iron like to make quite safe by tinning the valve cap and washer before fitting and sweating same together after the bolts have been tightened and rivetted.

TIMING GEAR.

1. To time the magneto remove the name plate covering the magneto timing wheel and slacken the central nut holding the fabric pinion. This nut will draw the pinion off the magneto taper as it unscrews and the magneto will then be free to set the timing in the normal manner. Correct timing for the various models is as follows, with magneto cam fully advanced:—

"Comet"
"Meteor" 42 degrees or 17/32" before top dead centre.

It is essential that the points be correctly gapped before setting the timing.

Correct gaps are as follows:—

Miller Dyno Mag.	0.019"
B.T.H. Mag-Generator	0.014"
T.T. Replica, B.T.H. Magneto	0.010"

For further information regarding electrical equipment see the respective makers' handbooks.

Correct timing for the ignition on the Replica type engines as fitted to "Comet Special" and T.T. replica machines naturally depends on the state of the tune of the engine, fuel used and other circumstances. For models running about 8 to 1 compression (standard "Comet Special" road trim) correct timing is 40 degrees advance. Individual engines may give better results with a slightly different timing, but that given is a safe one to use if in any doubt.

In the case of machines used or supplied for racing, in which higher compressions may be employed, it is best to get in touch with the Works, giving full details of compression ratio, type of carburettor, gear ratios, fuel to be used and the event for which the machine is being prepared.

2. Removal of Magneto.

Proceed as described above to remove magneto pinion. Then undo the two vertical clamping screws that secure the two halves of the magneto holding strap behind the magneto. Take high-tension lead off the plug and unfasten dynamo wires (in the case of Miller Dyno-Mag these pull out with a plug). The electrical unit can now be taken off the machine. In the case of plain magnetos fitted by studs underneath, these studs must be removed instead of the mounting strap.

3. Valve Timing.

The correct timing for all models will be found on the data sheet on page 20. In addition, all normal production models have the timing gears marked as follows to ensure correct re-assembly after dismantling.

Turn the idler wheel until two dotted teeth on the camshaft pinion come into view through the cast hole in the timing chest below camshaft, normally covered by the cover plate. The one dotted tooth on the idler wheel is meshed between these teeth, and if the cambox is not removed it may be necessary to make several revolutions of the idler wheel before the teeth mesh as required, due to the odd number of teeth in the idler. With the camshaft meshed as given above, two dotted teeth on the idler should be meshed with one dotted tooth on the half time pinion. One of the five keyways in the mainshaft will be found to be marked with a dot and the single keyway in the wheel should be keyed to this. It is essential that all teeth should mesh as described simultaneously.

The timing is not usually marked on Replica engines as it is often of a special nature to suit conditions of racing. In these cases, it is advisable either to mark the timing before dismantling, or preferably to check same at all points after re-erecting, using a degree plate.

To set the timing to any particular setting, remove the oil pump and half time pinion nuts (a $\frac{5}{8}$" Whit Box Spanner is required) and extract pinion by screwing two 1" x $\frac{3}{16}$" x 32 T.P.I. screws into the tapped holes in the pinion. Turn the valve gear by the idler shaft until the exhaust valve just commences to lift, which can be seen by the eye. Then set the engine to the desired points of valve opening and, by trial and error, insert the half time pinion so that it just slides into mesh when its keyway is in line with any of the five keyways on the shaft. Insert key, check up timing at all points and, if correct, re-assemble.

Note.—The standard timing is the most suitable on "Meteor" and "Comet" engines and only those who have had very wide experience in tuning racing engines are advised to experiment with non-standard valve setting, and then only on Replica type engines.

Timing points given are those at which the valves actually leave or touch the seats, not the points at which the push rods become tight.

REMOVAL OF CAMBOX, CAMFOLLOWERS AND IDLER WHEEL.

Should it be necessary at any time to inspect the camshaft or its bearings, camfollowers or pins, or the idled timing wheel, these can only be removed by taking off the cambox. Proceed to remove cylinder head and barrel as for decarbonising the engine. Then take off the camshaft cover plate and undo the nuts securing the cambox, which is now free to lift off, holding the camshaft down in position if it is not desired to disturb the timing. Camfollowers can now be removed by unscrewing the pins they rock on and the camshaft can be lifted out complete with bearings.

To remove idler wheel, take off oil pump and unscrew the three screws that secure the wheel to its shaft. Withdraw the shaft and the wheel can be lifted out of the top of the timing case.

To refit these parts, reverse the dismantling process, taking care, in the case of the camfollower pins, to clean off the face under their heads and smear same with a little fresh jointing cement. Also make sure they are screwed up really tight and punch over a bit of the cambox into the slot to prevent the pin unscrewing.

After considerable mileage, the faces of the camfollowers may become grooved and may be trued up using a sheet of emery on a flat surface. If the wear is excessive, new camfollowers will be required and, when fitting these, the following points should be observed:—

(*a*) That the follower does not bind and does not have more than 1/64" side float on its pin when this is tight home.

(*b*) That the follower tracks up centrally on the cam. Should this not be the case it must be eased over on its pin, either by filing off one side or by adding a spacing washer so that both conditions (*a*) and (*b*) are satisfied.

In the case of certain early models, even with the followers correctly spaced the exhaust follower may just touch one cam bush, in which event the abraded area of the bush may be eased back about $\frac{1}{32}$" by filing.

Before mounting the cambox, carefully clean its base and the top of the timing chest. Clean out the cast-in pipe from the oil pump and the channel connecting this to the outer cambush housing. Also clear out the oilways in the cambox. Except in a few early 1935 models, a paper washer was not fitted originally and must not be fitted, as the cambushes would not be held tight in their housings if a washer were used. In 1935 models where a paper washer has already been used and the cambushes appear to be secure in their housings a fresh washer may be made and fitted provided it is of very thin paper. In all other cases, use jointing cement only, taking great care that none gets in the oilways. Before pulling the top nuts down tight, make certain that the vertical machined faces of the cambox and timing case are flush, so as to provide an oiltight joint for the coverplate, tapping it into position if necessary.

When fitting new cambushes they should be placed in position, clamped down by the cambox and line reamered with a parallel $\frac{3}{4}$" standard reamer, protecting the timing gear from chips by rag. Up to 1/64" end-float is permissible for the camshaft. Replacement bushes for all models are fitted with a dowel peg to prevent rotation and it may be necessary, on early models, to drill a 3/16" hole to receive it, in the lower half of the bearing housing.

DISMANTLING THE CRANKCASE.

Remove engine from frame either before or after removing head and barrel, as described for decarbonising.

To take out the engine, detach outer half of oilbath, remove clutch springs and plate and centre nut holding clutch body. Remove engine sprocket by self withdrawing nut, and lift off both sprockets and chain in one unit, taking care not to lose the shims behind the sprocket or the clutch rollers, as these are uncaged and will drop out. Take off the rear half of oilbath and disconnect all cables, wires and pipes from the engine. Place a block under rear engine plates to support the frame when engine is withdrawn. (This is very important.) Undo all engine bolts and lift out crankcase.

With the head and barrel removed, the case can be split without dis-

turbing the timing of either valves or magneto (this being one of the many unique advantages of the Vincent H.R.D. design). To split the case, extract the location ring surrounding the half time pinion and take out the pinion (see valve timing page) after making sure that the timing is correctly marked.

Remove all the studs that hold the two halves of the case together and the timing side of the case can be lifted off, complete, leaving the inner roller race in the mainshaft, also the distance piece and shims which lie between the timing side main bearings and serve to locate the flywheel assembly correctly. Remove the shims and distant piece, carefully keeping them in correct order so that they can be replaced exactly as they were.

The flywheel assembly can now be withdrawn from the drive side case, if necessary using a little pressure with two levers, taking care to support them so as not to damage the faces or spigot of the case.

A number of shims and a chip guard will be found between the inner roller race and the flywheel; the very close fit between the chip guard and outer race of the roller bearing prevents an excess of oil from entering the bearing. If this guard and shims are removed, they must also be carefully kept in the same relative positions, otherwise the main bearing may leak oil. A similar chip guard is fitted between the outer ball race and main bearing cap with shims between it and the sprocket (see note on removing sprocket at the beginning of this section), and the same care must be taken to refit these correctly.

The drive side bearings can be inspected by removing the screws retaining the bearing cap, when the outer ball bearing—which should be an easy sliding fit in the housing—can be slipped out.

A spring distance piece will be found between the two main bearings which holds the outer ball bearing in close contact with the outer chip guard, the shims between the latter and the sprocket being so adjusted that with the sprocket pulled up tight the chip guard runs just clear of the bearing cap. Too great a clearance may allow oil to leak into the chain case, and if this occurs it may be possible to reduce the thickness of the shims, but it must be done with care, otherwise the guard may be trapped between the bearing and cap.

The big end can be dismantled by removing the timing side roller race from the shaft and undoing the crank pin nut. This requires a special $\frac{3}{4}$" Whitworth solid box spanner with a long tommy bar and should not be attempted without such a tool. The flywheel can then be pulled off the pin, and if the connecting rod is carefully lifted off with the crank pin vertical the three rows of rollers with their separators will remain in position. They can then be lifted off, one row at a time, keeping the rollers in each row separate and noting the relative position of each row so that they can be replaced on the same tracks.

If on inspection, the crankpin is worn or pitted on the roller tracks, it should be replaced, but wear under the separators is of little consequence. The sleeve in the connecting rod should not be replaced unless proper facilities, such as an arbor press, are available, and it is very advisable, if big end trouble is experienced, to return the complete flywheel assembly to the Works. A badly seized big end may cause damage to the rod, in which case the rod can often be re-ground at the factory and an oversize sleeve fitted.

The hardened side plates sandwiched between the crankpin and flywheels can be reversed if worn, but if they become blue and soft through excessive heat they should be renewed. When assembling, carefully clean all oil passages in pin wheel and timing side main shaft, and if a new pin is fitted press it into drive side wheel first and pull the nut up tight. Make sure no foreign matter is trapped between abutting faces.

Then, for "Comet" and "Meteor" models, assemble one row of rollers, using oil—not grease—to keep them in position; then a separator, another row of rollers, another separator, and afterwards the final row of rollers. If the big end has been badly worn or seized, necessitating new parts, it is most advisable to use new rollers whilst, if re-assembling with the original parts, replace the rollers in correct order as warned above.

The rod should be replaced using a loop of string round each row of rollers in succession, and it should slide over the rollers by its own weight. If a new race has been fitted and force is required, the race should be lapped out.

The side clearances of rollers and sleeve are very important. The rollers should be .002" to .004" below the shoulder of the pin and, if less, the separators should be thinned by rubbing on a flat sheet of emery. If the clearance is too great, new separators will be required. The clearance between the side plates and big end sleeve should be between .005" and .010". "Comet Special" and "Replica" engines have a slightly different arrangement, using four thin separators instead of two, and the clearances are slightly larger, being .005" to .007" for the rollers, and .009" to .012" for the sleeve. Two separators lie between the rollers, the other two between the rollers, and each side plate.

The flywheels can be lined up roughly by means of a straight edge across the rims and the remaining crankpin nut can be pulled up tight. The shafts must then be accurately lined up between centres, the total permissible amount of error in both shafts being .004" for "Meteor" and "Comet" models, and .002" for "Comet Special" and "Replica" engines, though it is usually possible to obtain a much greater accuracy than this.

To re-assemble, place timing side roller race distance piece and shims on shaft, and place assembly in timing side of crankcase. Replace washers and chip guard on drive side of the main shaft in same order as removed, which should be: $\frac{1}{32}$" washer touching wheel, chip guard, $\frac{1}{32}$" washer. Fit drive side crankcase, then force roller race down into place on shaft. It is important to check that inner ends of rollers do not rub against lip of outer race; to check this, verify that the face of the inner race projects .020" to .040" above face of outer race, if not, either some washers or shims have been omitted, or else slightly thicker washers are required. When correct, fit spring distance piece and ball race and test for freeness by "pumping" con-rod by hand. Then fit outer chip guard and bearing cap, pulling latter down tight with three screws, and replace washers as removed. These should be of such thickness that the sprocket is just held off the taper by not more than $\frac{1}{32}$". If more than this, oil will leak out through the bearing, and if less, the outer chip guard will be trapped between race and bearing cap, and also end thrust will be placed on the ball race by the spring distance piece.

The serialisation of this 80 year old document will continue in subsequent OVR editions. Ed

Vale, Jack Furness:

Jack's death at the age of 95 on March 8, 2018 marked the end of an era for Vincent HRD motorcycles, as he was the last surviving workshop engineer from the iconic Stevenage firm – even outliving the apprentice John Surtees, who died last year.

Jack, who raised his children in Stotfold and later lived in Hitchin's West Hill, grew up in the villages of Pemberton and Marsh Green, near Wigan. As the son of a Yorkshireman and a Lancashire lass, he said he was entitled to wear both red and white roses – as marked with the funeral flowers.

Jack's passion for all things mechanical began when, as a boy, he would watch his relatives maintaining the steam engines in the cotton mills and coal pits.

In his eulogy, son-in-law Geoff Page told how Jack had left school aged 14 to work in a hardware store, before joining the RAF Volunteer Reserve during the war. He specialised in Lancaster and Wellington bombers – and his release papers recorded that he was "a superior mechanic on the repair and maintenance of the combustion engine".

One of his postings brought him to RAF Henlow, and at a dance in Hitchin he met Pat Webb. They married at the town's St Mary's Church on May 15, 1948. After a period apart as Jack worked for British Leyland in Wigan, Pat found him work with Vincent in Stevenage – "and as they say the rest is history", said Geoff. Jack later set up his own firm refurbishing Vincent bikes at Cromer, near Stevenage, with fellow ex-Vincent man Alf Searle. Geoff said Jack's ability to fix things was renowned, and that he had lived by the mantra of "never put off until tomorrow what you can do today".

Jack was still riding motorcycles until two years ago. He leaves a daughter, three grandchildren and five great-grandchildren – to whom, Geoff said, he was known as "the greatest grandad".

International Rally 2019

The first stage of the VOC International Rally will be located in Houffalize, Belgium from June 3rd to 9th. An area which is part of the Ardennes with rolling countryside.

Watch a video of a Motorcycle tour in the Belgian Ardennes Click here

The second stage of the International Rally will be located in Wagrain, Austria from June 11th to 17th. An area with wonderful Alpine scenery.

Watch a video of a Motorcycle tour in the Austrian Alps Click here

The VOC has arranged hotels in both places, both with half board.

Prices for Accommodation:

6 nights, in Belgium	416 Euros/person double room, 506 Euros/person single room
6 nights in Austria	510 Euros/person double room, 570 Euros/person single room

Prices for excursions:

Trier/boat trip with buffet/wine tasting	135 Euros/person
Luxembourg City	51 Euros/person
Berchtesgaden (bike only)	40 Euros/person
Salzburg City	65 Euros/person
Dachstein Glacier (with breakfast)	85 Euros/person

Please make your booking for excursions NOW as there are limited places and early deadlines.

For both stages you need to register for the Rally, and pay a non-refundable deposit.

Note, the registration is designed to be used by up to 2 people. If you want register 4 people then you must complete 2 registrations, and so on.

If you have not got a partner but want to share with a traveling companion, please put the traveling companion under the headings that refer to a partner, and make sure you give the FULL name.

There is an option to express interest in the Bike Shuttle service from Austria, this is a service where your bike will be picked up in Austria and transported to England A ride out and fly home service.

There is an option, in Austria, to stay a further 2 nights under the same conditions. This is NOT part of the International Rally.

After you have registered and paid, you will be contacted by a VOC official to make sure that you have entered the details correctly, and that Official will pass on your details to the hotel(s).

You will get an invoice from the hotels for accommodation and the excursions.

Click to register

An Effective ALTON Oil Seal for a Comet

There is no denying that Paul Hamon's Alton alternator is one of the best things you can do for any Vincent that's a regular on-road ride – it provides the basic building block of efficient, reliable and powerful electrics that can then support any combination of modern headlamp globes, upgraded ignition systems, turn indicators and for the ultra-modern rider, GPS and phone electronics as well.

Oil sealing, actually lack of it, is the Alton's Achilles heel when being installed on a Vincent Comet (I have no experience with an Alton on any other bike)! The standard oil seal method is to smother the end face of your Alton with your favourite brand of silicon sealant, put the Alton in place on the motor and acting quickly adjust and tighten everything up before the silicon sealant starts to cure. Good luck!

This is all well and good and will work provided before you start applying the silicon you get ALL surfaces surgically clean – even the slightest trace of grease or oil on any surface where you hope for a seal will mean that the silicon will not bond securely to that surface and at some future date, always the most inconvenient time, oil will start leaking past the end of the body of the alternator, run down the back of the engine case and from there apply a constant stream of rust preventing oil to the rear of your Comet – especially the rear tyre! Not good.

Next problem: when you come to remove the Alton to try to fix the said leak you will discover another property of silicon sealant. It is an almost gorilla strength adhesive – and in the confines of the Comet cases there is no way you can get a knife (or scalpel) blade in there to cut the silicon away in order to free the Alton. Brute force is frequently required along with colourful and loud swearing, often over many hours. There has to be a better way!

Readers may remember that on the Comet the way the factory sealed the Miller dynamo was by means of E224, a lipped seal that is a press fit into the crankcase and runs on the shoulder on the rear side of the dynamo pinion E228.

Pictured is E228 where you can easily see the 'surface' that mates with E224 making a very effective and long lived oil seal. Note: this type of seal relies in part on the rotating surface to be highly polished – smooth.

I started wondering if a like seal could be applied to the Alton.

Here is a picture of the drive end of my Alton. Look carefully and you will note the diameter of the drive shaft is largest where it exits the alternator body and it is then reduced in diameter to accommodate the drive gear. This photo was taken after I had polished the larger diameter part of drive shaft so ensuring a (future) lipped seal had a smooth sealing surface to run on.

Armed with the old E224 dynamo seal and my Alton I paid a visit to my local bearing supply house seeking a suitable lipped seal; one with an OD that would fit securely and oil tight in the crankcase opening and an ID that would be make an oil tight seal on the polished Alton drive shaft. What was found was a lipped seal with the description "Seal 18-35-7"; this has an ID of 18mm which

is perfect for the Alton drive shaft, and an OD of 35 mm which is just 0.075mm larger than the 1 3/8" crankcase opening and has a depth of 7mm.

Pictured here is the original E224 used in conjunction with the Miller dynamo, alongside it (right) is the new 18-35-7 seal for use with the Alton. When installing ANY lipped seal the side with the garter spring MUST be on the oil source side.

Installed, the end of the Alton's body is to be flush against the outside surface of the crankcase so I fitted the new seal so that the back of it was just below the outside surface of the crankcase – by about 1/16" - thus ensuring the Alton would mount flush as intended and that the lipped seal would bear on the larger diameter portion of the Alton drive shaft. The seal is a firm press fit into the crankcase opening and I used a suitable drift to get the seal into the exact position sought, making sure it was not cocked in the opening.

Here is the new seal in place from outside the crankcase, and right, from the timing chest side.

Lipped seals ONLY work if there is a thin film of oil on the bearing surfaces, so be sure, as I did, to have a quantity of clean fresh oil on the seal surfaces as you assemble things. All that remained was to slip the Alton into position taking care to keep the drive shaft central within the lipped seal as lipped seals will NOT last long if the sealed shaft is not central and running true. The final photo is with all in place, ready for the timing cover to go back on.

Now, with over 500 miles of on road testing with the new setup in my Comet I can report that the Alton installation, for the very first time, remains oil tight!

Event Calendar

2018	
May 1-5	2018 North American VOC Rally in Kerrville, Texas. The scenery and weather will be great and the riding is really world class. Just too good to miss! More info at http://lsvoc.vincent-hrd.co.uk
May 26-27	42nd Historic Winton; meeting for heritage cars and motorbikes. More info from www.historicwinton.org
August 27-31	Australian National VOC Rally, to be held at the Maroochy River Resort in Queensland. Contact kevinfowler2@bigpond.com for more info
Sept 18 - 24	VOC Austria Rally. Said to be the best ever – too good to miss. Contact Michi for more info schartner.m@sbg.at
2019	
March 22 -24	VOC NZ 2019 Annual Rally @ Otago. Email beatim@xnet.co.nz for more info
June 3 - 19	VOC International Rally; Belgium and Austria. More info to follow also see MPH
2020	
tba	International Jampot Rally in Nelson, New Zealand for AJS & Matchless bikes. Contact nipper@nipper.net.au

Maintenance Miscellanea

Installing Grosset Starters

I am in the process of installing one of Francois Grosset electric starters on my Vincent Twin. This involves some very precise machining to Kick-start cover G1, Kick-start Quadrant and also the Kick-start pinion and bush. This machining was way beyond your average home workshop, including mine.

So I made contact with Colin Webster at Formula Tooling, here in Rowville, Victoria. www.formulatooling.com.au Well Formula Tooling made up a jig and a CNC programing for machining, which means it is always available for any future customers.
I have fitted the starter and given it a test without the spark-plugs in and it turns over very smoothly.

Mike Walker, Australia

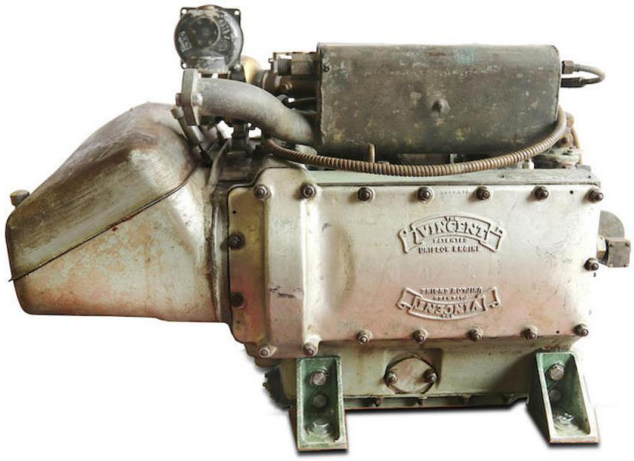
Another Grossset Vincent Starter Tip

It's wise to remove these two screws (arrowed), they are only 1/4" long, and replace them with longer 15mm one's and make sure to secure them with a decent amount of Loctite.

One of these screws in my installation came out after only a few hundred miles of used causing mechanical mayhem. New planetary gears, armature, outer nylon gear and complete outer housing as it also broke a chunk of one of the magnets.

If a longer screw and a dab of Loctite was used as part of initial manufacture this may never have happened!

S. Drake, Australia



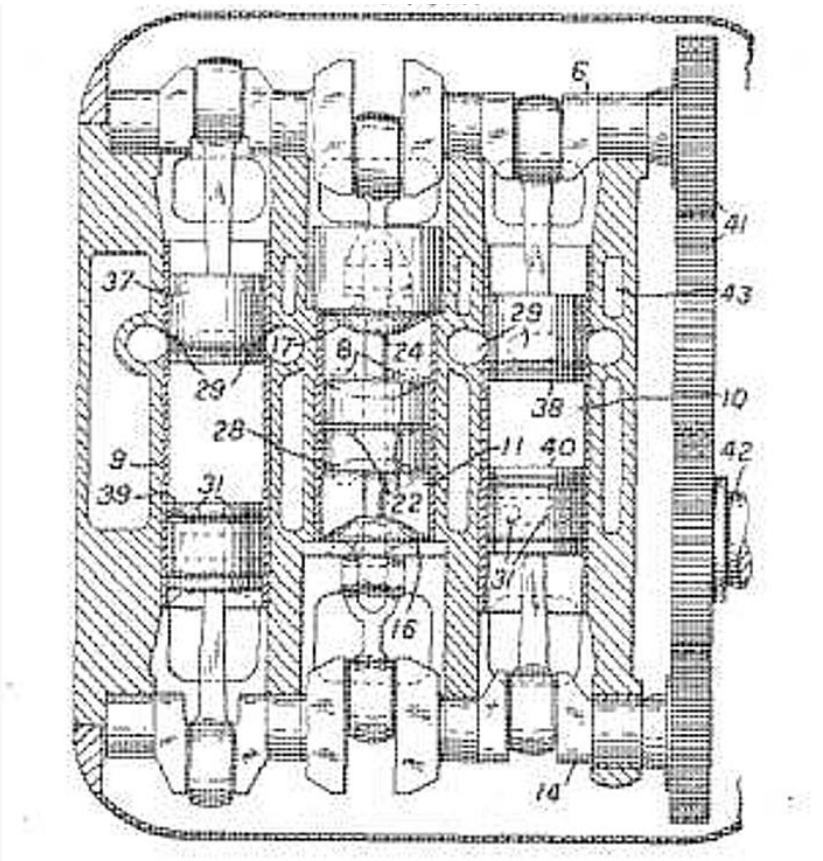
VINCENT TWO-STROKE LIFEBOAT ENGINE

Like so many other companies, Vincent ceased motorcycle production in 1939 and the factory shifted their efforts over to the war effort, mainly the manufacture of munitions. But in 1942 the Royal Air Force , expecting a protracted campaign against the Japanese, was looking for a lightweight, highly efficient lifeboat engine that could run reliably for extended periods of time.

Prior to Japan entering the war the British military already had powered lifeboats that could be dropped from an aircraft for flight crew rescue, so the concept was proven. The existing lifeboats only had a range of 500 miles however, which was considered sufficient for crew rescue in the North Sea for example. But with the need to fight a war with an adversary in the Pacific Theater that was no longer sufficient: a 1000 mile range was needed.

Company boss Phil Vincent already held patents on a suitable design, which he turned over to Phil Irving for final engineering. The result was a 500cc opposed-cylinder design with three bores each containing two pistons. The outer two cylinders produced power, while the middle cylinder with double acting pistons fed the other two to that provided air/fuel intake with a swirling turbulence to aid even burning, yet removing the need for a pressurized crankcase as normally used in two-stroke engines.

The use of opposing pistons in the Vincent Uniflow marine engine obviated the need for a heavy cylinder head and enabled the engine to be made compact and flat, keeping its center of gravity as low as possible, something that is important to maximize the stability of the lifeboat. The centrally mounted cylinder with its opposing pistons also enabled much more precision in the timing of the inlet of fuel/air mix to the power cylinders one and three. The design allowed for different timing for each cylinder to optimize power and fuel economy to reach the 1000 mile range target whilst also providing a boat speed of 5-6 knots.



Original patent drawing of the Phil Irving designed Vincent Uniflow engine features three cylinders with six opposing pistons, two cylinders providing power and the centrally mounted third cylinder providing air/fuel intake with a swirling turbulence to aid even burning. Detailed description of operation is further on in this article.

Although Vincent got to work on the creation of the Vincent Uniflow marine engine the urgent need for it ended quickly because the Japanese military conquered much of Asia from China to Indonesia at a speed that shocked the British Government. Even Singapore, that had been considered to be a strong bastion against the Japanese, fell with little resistance.

Nonetheless Phil Irving set to work to create an engine that could be expected to be put into use if the Japanese were able to be pushed back out of the lands they had conquered, and for the final assault on Japan itself. The engine was designed to produce 15hp @3,000rpm and to be frugal on fuel, so efficient that it was as good as a comparable four-stroke. The engine was to be able to be hand started although that proved difficult and an electric starter was included in the final design, which tipped the scales at 256lb/116kg dry.

Unfortunately, this unique engine program wasn't completed before the end of hostilities, though in final form in 1947 the motor seemed to meet all of its design goals. Producing 15bhp at 3,000rpm, with 50 gallons of fuel on board, the Vincent two-stroke should have been good for up to 5 knots per hour and a range of over 1000 miles, which certainly beats swimming or fighting off sharks.

Here is the detailed description of the working of the Vincent Uniflow engine as described in the patent application.

Two-stroke engines. VINCENT, H. R. D. CO., Ltd., and VINCENT, P. C. Jan. 6, 1942, No. 216. [Class 7 (ii)] In an engine having single-acting opposed pistons in each cylinder, the pairs of pistons in different cylinders operating out of phase by substantially 180 degrees, a charge of air or combustible mixture is fed to the cylinders by means of a double-acting reciprocating pump driven in the required phase relationship with the engine and having outlet ports on opposite sides of a piston connected, respectively, to the inlet ports of the cylinders operating on the out-of-phase cycles. In the form shown, a pump cylinder 11 has conical end plates 16, 17 corresponding with the outer faces 28 of two hollow opposed pistons, and is arranged between two engine cylinders 10 with liners 9. the pump cylinder 11 being of greater diameter than the engine cylinders 10, and the stroke of the pump pistons being less than that of the opposed engine pistons 37 ... 40. The engine pistons 37, 38 each control three exhaust ports 29, whilst the engine pistons 39, 40 each control two inlet ports 31. A carburetter is connected to four pump inlet ports 8, two central pump outlet ports 22 are connected to the two inlet ports 31 of one engine cylinder, whilst two end pump outlet ports 24 are connected to the two inlet ports 31 of the other engine cylinder. The engine pistons 37 ... 40 drive two crankshafts 6, 14 which drive the pump pistons and are connected by gears 41 to the drive shaft 42, water-jacket spaces 43 being provided. Specification 555,975, [Croup XXXI], is referred to.

Crew fitting an aluminum lifeboat under a bomber. The purpose was for the bomber to drop the lifeboat to surviving air crew at sea so they could sail themselves to safety.

Sidecars, what were they thinking?

An original contribution from P Pilgrim, Australia

The first sidecar outfit I ever laid eyes on was when I think I was about three or four, my Grandfather owned a 1948 Speed Twin Triumph with a Dusting Sidecar fitted; he would remove the body and replace it with a wooden tray to carry his ladders and paints as a painter and decorator a job now that has has ceased to exist to a large degree. Apparently he used to carry Grandma and my mum on it and it had replaced a Henderson 4 outfit that he owned for many years previously, anyway a car did a u turn in front of him in 1961 which finished his riding career, surprisingly he had never ever ridden a solo.

Some seven years later I was a apprentice at Cottrell"s Garage in Fairfield and my boss was slowly retiring from scrambling, and road-racing outfits to concentrate on Speedway outfits, every Monday morning whatever the weather I had to steam clean these filthy machines, in that era a supercharged 650 Triumph then eventually Herda's (HRD-Vincent) and cover the magnetos before I started the chore and if they weren't done properly a "kick up the arse" followed! It wasn't long after till one day Davie Cottrell had a bad accident in Port Pierie and sold the whole lot to a guy in S.Aust and part of the deal was a 1948 Vincent-HRD with a triple adult Canterbury sidecar, Davie decided to do a cheap resto and get it registered.

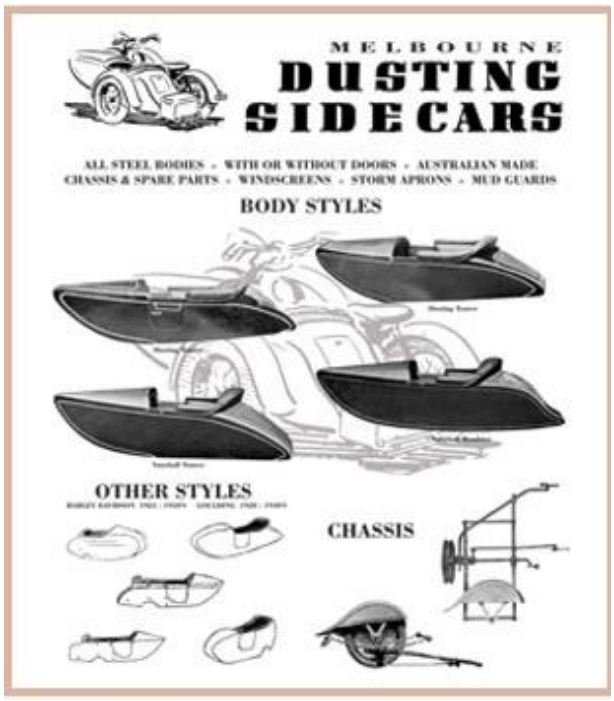
This is when I really got to know about outfits, he said to me one day " You can ride the Herda down to RTA in Carlton and register it as my leg is in a cast" up till then I had sat in the chair on his speedway bikes as ballast as he roared them around the petrol bowsers checking they were ready for a Saturday night meeting, riding a road version with a small caravan attached on the road was a whole different ball game.

I was shit scared as I had heard all the stories of them rolling over on left hand corners, or bike over-sidecar on fast right handers, and stories about no or minimal braking to help, also everybody told me it was a black art that took years to learn if you never died practicing it in the first place, needless to say Davie said you will be right, don't lean just steer and he would follow in the works FX Holden ute.

This Vincent was a "beast" it wanted to kill somebody and I was a prime candidate unbeknown to me it wasn't set up well and it constantly tried to "mount the kerb" when the front brake was applied it decided to have a "head on" with oncoming traffic and it was impossible to steer as it would try to "Tank Slap" in a straight line I soon learned all about steering dampers on this short rideStation street Fairfield is a small and very busy shopping area and Cottrell's Garage was at the end of it so I had to initially not kill any shoppers it amazes me when you have so much trouble with a motorcycle how oblivious pedestrians always are, stepping out in front of you as your clutch is dragging say, anyway white knuckles were de-rigour at this time and I eventually made it to the corner of Smith st and Queens Parade Clifton Hill it is off camber and in those days no traffic lights, a old EJ Holden was on my right side and I touched the front brake, a disastrous move as the Herda dragged itself to bounce off the passenger side rear door using my leg as a buffer. I stopped over this intersection white as a sheet and Davie told me to get back on

as we were nearly there (actually about 3klm's off) it took all my strength and courage to remount it an continue, surprisingly I made it and then after registering it had to ride it back to the Garage, Davie continued to encourage me by commenting it was easy now as I knew what to do and we couldn't leave it at the rego branch. Amazingly I made it back with no major problems except being mentally exhausted, and it would be some time before I ever rode a outfit again.

Time heals all wounds and after dabbling with Cafe Racers and riding like a maniac on solo"s with a couple of very,very close misses I decided to build a 1948 Speed Twin (the same as my grandfather's) as I had a rear spring hub and a engine only, a long way off a motorcycle but a start, and then I was working at Vic Wreckers & parts were available, 80% through the rebuild I was offered a really good Dusting sidecar chassis and from another source a body, now that's a way to slow a loutish youth up if nothing else. Work progressed quickly and I rode the Triumph solo for a short period and then fitted the chair, it was a revolution it wasn't fast or stopped well but it handled like a sports car mainly because the sidecar wheel had a 3" lead on the rear wheel and it was light to steer to boot! I loved it and soon thought about my dream bike a Vincent that would go better than the Triumph and stop better as well I hunted for a mythical Vincent with fervour.



Eventually I bought one from Geelong and restored it over 1.1/2 years and fitted the Dusting off the Triumph, it was fast drank fuel unbelievably and did not handle as good as the Triumph reason being the sidecar wheel was 11" ahead of the rear wheel and hard to alter as the rear sidecar mount is near the centre of the bike unlike the Triumph's bolted near the rear axle.

Still this started me on building a classic road racing Vincent "Sitter" and in the late seventies with the sidecar chassis made from a school desk and the chair wheel a converted wheel barrow wheel was a very competitive machine, we set the sidecar up rear-exit so it wasn't to bad to ride fast through corners. My sidecar passenger Ross at the time glimpsed the wheel barrow tyre with "Do not exceed 8 MPH" embossed on it and insisted we change it to a Mini wheel, I said I was happy if he wanted to change it it was up to him, it was changed pronto the 3 years of racing before had never worried him, ignorance is bliss.

Working at the Triumph dealer F Musset and Co in the seventies they had a 1948 Model U Harley and a huge box on it for deliveries or to pick up break downs, no brakes not fast and held the road like it was bolted to it as it weighed a ton,this hand shift Harley taught me more on the road than road racing it was dangerous and gave me upper body strength of Arnie Swartznegger as well it was another outfit that was hell bent on killing me or anyone else including pedestrians

Into the eighties and since I have never been without a sidecar and at the moment have two, a Vincent with a double adult Tilbrook and a 1944 military Indian Chief, to not have a outfit would not be natural I just love them, and if you hav'nt tried one do so it may open up a whole new slant on motorcycling for you

There has been much chatter recently around ignition timing and combustion efficiency. This story first published in Motor Cycling in 1954 just goes to show that some topics never fade away.

IGNITING THE CHARGE

A Simply-worded Explanation of Some of the Problems Involved in a Vital Factor in Engine Performance

By L. R. HIGGINS

A REQUISITE for the operation of the internal combustion engine is that the fuel shall be burnt rapidly. It must not be burnt slowly because the engine would not then function; nor must combustion be instantaneous, for that would soon wreck the engine. But it must be burnt in a time that is measured in millionths of a second. Slow burning is the process of inflammation and the engine would not function under such conditions because the rate at which the mixture would burn would be so slow that, before the rising pressure in the cylinder had reached a value high enough to be effective, the piston would have reached b.d.c. The energy obtained from the burnt gases would then have been wasted instead of being stored in the flywheels. Detonation is equally undesirable; it is *too* rapid a process of combustion, and the very high pressures developed when detonation occurs impose very severe stresses, far higher than those the engine is designed to withstand.

High-Velocity Charge

The problem of igniting quiescent gas does not arise, for the charge enters the cylinder at velocities around the 100 m.p.h. mark, swirls around the combustion chamber and finally is pushed upwards by the ascending piston during the compression stroke. Commotion of the gas is therefore a natural condition, and it is necessary that the charge be kept in commotion until the moment of ignition in order to procure rapid propagation of the explosion. When designers realized the importance of gas commotion they did everything to encourage it. As a result a great deal of research has been carried out on cylinder head design and from it have emerged new configurations for combustion chambers and ports, designed to promote turbulence. Agitation of the gases during the process of ignition helps to increase the burning rate by spreading particles of ignited gas to a number of different points throughout the unburnt portion of the charge.

The need for the rapid combustion of the charge is illustrated by the following examples. Assume that an engine is turning over at 2,000 r.p.m. and that the magneto points are timed to open at 40° before t.d.c. The engine speed is equivalent to 33 revs. per second and the crank will pass through an angle of 12° every millisecond. For the force of the explosion to be fully effective the piston should be just commencing its downward stroke, therefore, with a 40° ignition advance, the time available from the moment the magneto points open until the piston begins to descend is a mere 3.33 milliseconds.

Now examine a racing "five hundred" on full bore at 7,000 r.p.m. This gives a crank speed of 117 r.p.s. or a crank angle of 42° per millisecond. With an ignition advance of 40° the time available has been reduced to approximately 1 millisecond. Finally, a racing 125 c.c. engine at 10,000 r.p.m., which is 167 r.p.s. or 60° per millisecond. Assuming the same ignition advance as before, 40°, the time available is 0.66 millisecond.

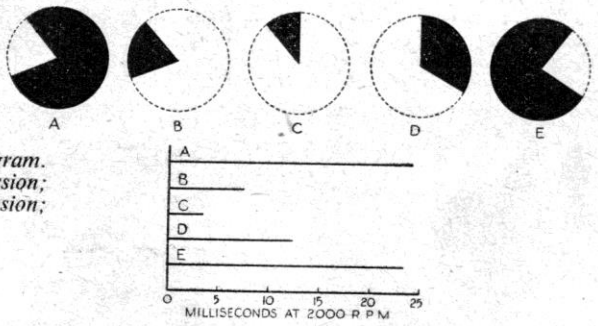
Obviously, this ignition equipment plays a pre-eminent part in securing the desired results, and a great deal of research and thought lies behind the production of this important auxiliary. Racing has helped to bring designs to their present-day perfection, for the conditions met with are as exacting on ignition equipment as they are on the rest of the machine—yet another argument in support of the theory that racing improves the breed.

The spark which jumps across the points of a plug is the visible evidence that an electric current is flowing across the gap. Strictly, the current does not jump, but is carried by particles of electrified matter which are present in the gap length and are forced across by the high-tension voltage (pressure) generated by the ignition coil or magneto, but the current does not flow with the same ease that it passed through the windings of the coil or magneto. A low voltage is sufficient to send an electric current through copper wire, but a high voltage of several thousands is required to *force* the current across the plug points, separated by air or other gaseous medium. This is because air, unlike copper wire, is a very poor conductor of electricity.

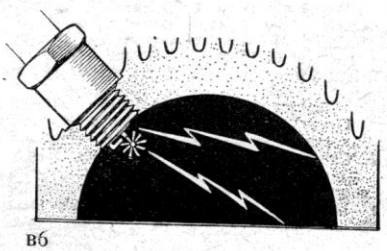
A high voltage applied across the plug points sets up an electro-static stress in the surrounding air-petrol mixture. This stress may be visualized as "lines of force," similar to the magnetic lines of force, or stress, which exist in the field between the poles of a magnet, and its application to the molecules of the gases in the mixture causes them to split into positively and negatively charged particles of matter, referred to as "ions." The effect of this splitting of the molecules is to reduce the insulating properties of the gaseous mixture and increase its conductivity. This change is termed "ionization" and it permits an electric spark to appear at the plug gap, but not until the gap is completely "ionized."

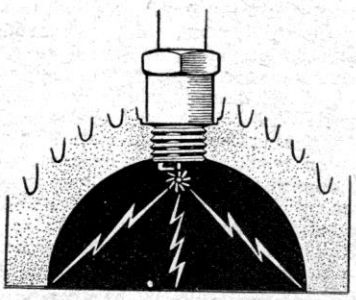
Free ions exist before electrification takes place and the effect of the electric stress on them is to impel them rapidly across the space between the plug points. On their journey, the ions collide with the gas molecules and cause the split already mentioned, thus increasing the number of ions. These newly released ions are, in turn, involved in collisions and generate more ions, a process which is repeated *ad lib*, under the influence of the electric

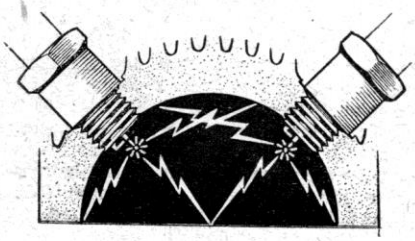
(*Continued on page* 303)



The time taken by each phase of operation of a "sports" four-stroke engine running at 2,000 r.p.m is shown by this diagram. (A) Induction; (B) Compression; (C) Ignition; (D) Expansion; (E) Exhaust.







The way in which the explosion is propagated by various plug arrangements is shown in these three diagrams.

IGNITING THE CHARGE - - - - Continued

field, until the gap is completely ionized and the spark appears.

Ionization of the petrol-air mixture takes time, a very small period of time, it is true, but with an engine running at the moderate speed of 3,000 r.p.m., the ignition period, from the time the contact-breaker points open until the piston reaches t.d.c., is less than 3 m.s. To reduce the lag to a minimum, ionization must take place very rapidly; it can be speeded by increasing the density of the mixture and by keeping the plug gap to a minimum. A wide plug gap increases the lag, hence the importance of adjusting the plug points to obtain the correct and recommended gap size.

Despite a great deal of research, the properties of the spark have yet to be fully explained, but it has been determined that the spark has two components—an "active" component of very brief duration and a less effective component of much longer duration. Although the duration of the spark is up to about 8 milliseconds, the crucial moment of sparking is so short, a matter of a few microseconds, that it is very difficult to make observations and measurements. It is the "active" component which initiates the explosion. The remainder of the spark plays a minor but useful part because conditions in the combustion chamber are not ideal, particularly when the engine is cold. With a cold engine the mixture is not properly volatized, but the heat from the spark causes rapid evaporation of the particles of liquid petrol suspended in the air surrounding the plug points and produces a near perfect mixture which readily ignites and materially assists in the propagation of the explosion—in other words, easy starting.

The All-important Plug

The efficient operation of an engine is as dependent on the sparking plug as it is on other components, and although the plug is static and has nothing to do but emit a succession of electrically generated sparks, it is, nevertheless, a highly stressed component which has to withstand high electrical, mechanical and thermal shocks, not for short periods, but for many thousands of miles.

The material surrounding the centre electrode and insulating it from the body of the plug must be capable of withstanding the high potential, of 10,000 volts or more, that is generated under cold-starting conditions. For a long time mica was used when the utmost reliability was required under particularly arduous conditions, but in recent years this material has been largely superseded by ceramics based on fused aluminium oxide. The seal, usually gland washers or, in the detachable type of plug, a screwed gland, must remain gas-tight against high explosion pressures, which, in a racing engine, approach 1,000 p.s.i.

The insulant of the plug has to withstand severe thermal shocks brought about by cyclic variations of temperature. During the explosion of the gases, the plug is subjected to a temperature in the order of 2,000° C. and almost immediately, in a matter of milliseconds, is rapidly cooled by the incoming charge during the following induction stroke, the temperature of the charge being very little higher than that of the external atmosphere.

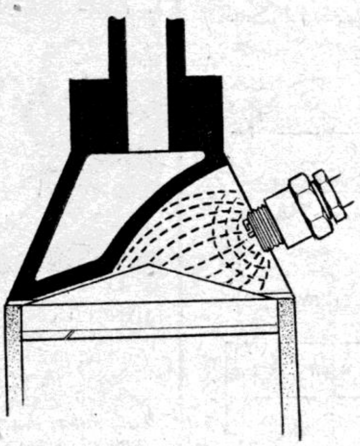
At one time it was considered that a central position of the sparking plug was ideal in hemispherical heads, for then the centre of the explosion was equidistant from the limits of the combustion chamber and the explosion was propagated in the shortest possible time. Such a position can be obtained with designs using four small valves (two inlet, two exhaust) radially disposed, as in the Rudge. Because of the large port diameters, few makers of two-valve engines fit centrally placed plugs, the four-cylinder M.V. and Gilera racers, being notable exceptions. Consequently the plug was placed at the side of the head and the distances the flame had to travel were unequal.

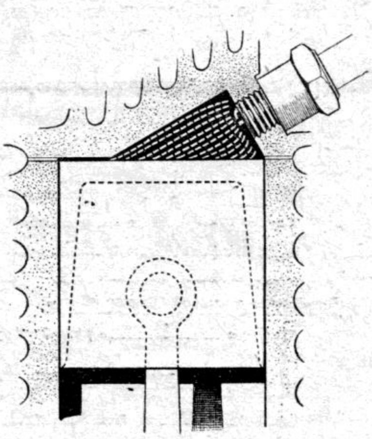
Twin-plug Problems

If two plugs are used and fired simultaneously the explosion will be propagated from two points in the combustion chamber and the mixture more rapidly burnt. Such an arrangement was used on racing engines in the 1930s, but abandoned, although it is now used in the Guzzi racer. There are, nevertheless, certain disadvantages. The magneto has to be a special twin-spark instrument; the second plug can only be accommodated beneath the cambox on the engines fitted with overhead camshafts, and cannot be removed without first removing the cambox, therefore, if the plug oiled during a race it could not be changed; the provision of two plug holes weakens the cylinder head in the vicinity of the valve seats, and this weakness is aggravated as port diameters are increased. improvements in cylinder head design and the adoption of light alloys permitted much higher compression ratios to be used than hitherto; as a result the two-sparking-plug system fell generally into disuse, for it was discovered that the increase in power obtained by using two plugs was much less with high-compression ratios than low-compression ratios; so much less, in fact, that it was not worthwhile in view of the various disadvantages mentioned above.

The supposed disadvantages of a side-positioned plug have been overcome by developments in combustion chamber shapes, designed to promote turbulence. With these, some control can be exercised over the rate of burning by causing the charge to flow towards the centre of the explosion. On side-valve engines and flat-topped o.h.v. designs, "squish heads" have been evolved. The term "squish" is functionary and suggests the method by which the charge is, after compression, finally squirted towards the plug and the valve chamber.

Although satisfactory enough for general purposes, coil ignition has never, hitherto, been seriously considered as a rival to the magneto for racing purposes. A coil system has two serious disadvantages; it requires an electric battery to energize it, and, due to its high self-inductance, the voltage falls as the engine speed rises, whereas the voltage generated by a magneto increases with an increase in speed. The objections to a battery are that it is cumbersome, susceptible to vibration and has to be recharged periodically, but these objections have been partially overcome by the introduction of the silver-zinc battery. So called "sports" coils are available for competition purposes but they retain the inevitable characteristics of a reduction in voltage with an increase in speed. A feature of coil ignition is that engine power is not absorbed in driving it; it is, therefore, an attractive proposition for engines of small capacity and power output, while, of course, for starting purposes, the spark is strong at low r.p.m. A significant pointer is that in the past season a successful German racing machine of the Lightweight class, the N.S.U., although capable of very high engine speeds, relied on coil ignition, as did the Guzzi and the Spanish 2-stroke Montesa, in the recent T.T. Details of the system employed in the N.S.U. have not been divulged but it appears likely that the coil is of a design far superior to any previous types. One thing is certain, that it produced a spark which gave satisfactory results over four laps of the T.T. course and at engine speeds up to five figures.





*Two examples of a "squish"-type head. (**Left**) The Aspin head with rotating combustion chamber. (**Above**) A triangular section combustion space as employed in many s.v. engines.*

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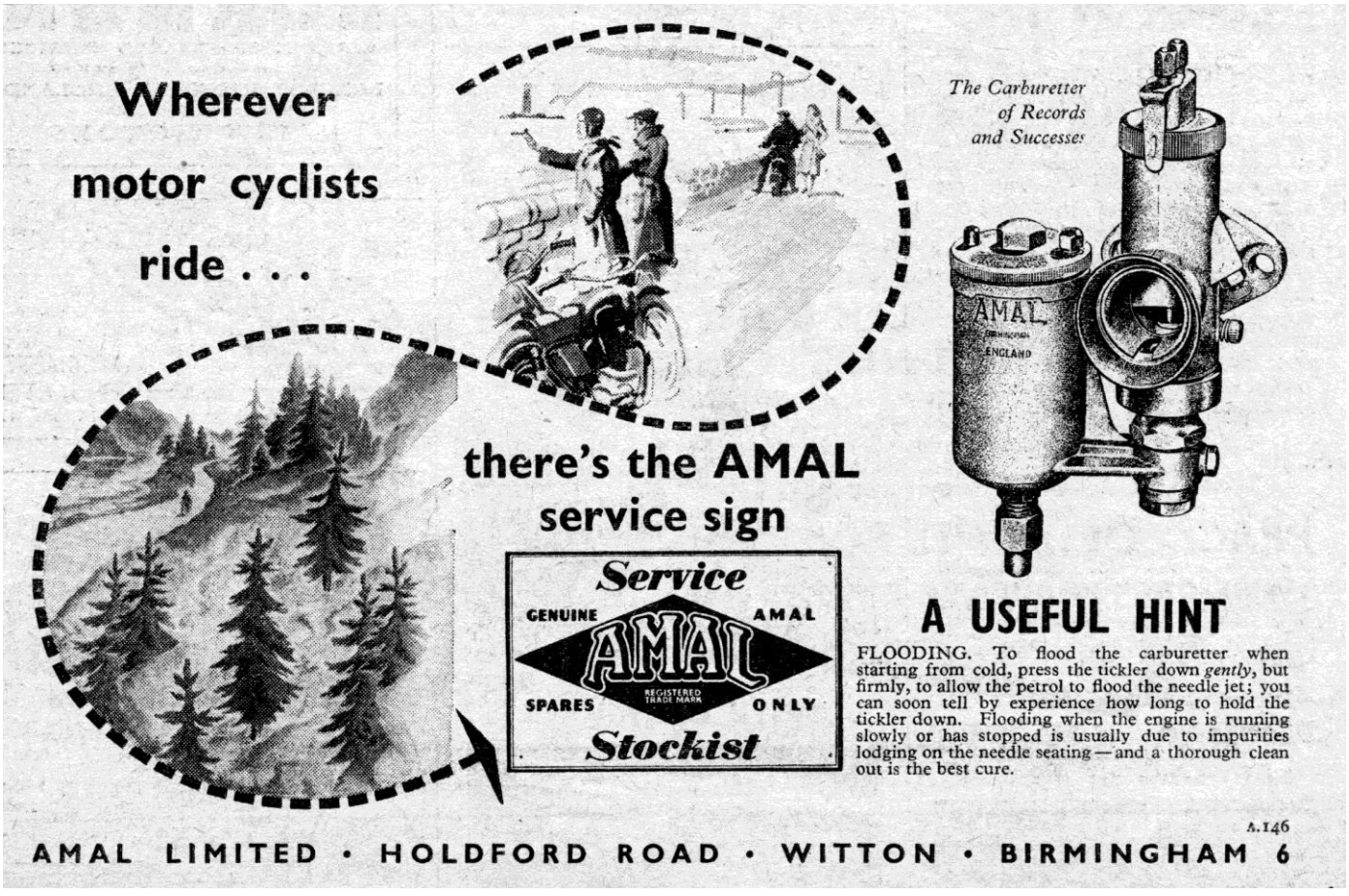
For Sale: Modern gaskets for the Vincent.

The gasket materials, known as 'AFM' is a chemically blown, compounded nitrile synthetic rubber, bonded to an aluminium core with temperature resistance of over 250º F. AFM material does not require gasket sealers or silicone bead. Re-torque is NOT required.) These gaskets can be used many times over.

Post war Vincent twin gasket set includes:ET106, PD14, ET105, 2 each ET102, ET182/1, ET180l and 2 each ET181. US$52.46. Also ET 140 Clutch cover gasket available, US$14.56
Post war Comet and Meteor kit includes (pictured): ET 106, ET180, ET182, ET181, PD14/1, and ET106. US$52.00

Pack and post is additional

All gaskets are .060", ET106, is supplied in .032". (gaskets are available in.032" & .018" thickness). Contact Paul Holdsworth of the VOC Chicago section c/o phpeh@hotmail.com Located in Chicago IL USA.



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Spares:

V3 Products, Australia: (aka Neal Videan) has an extensive range of top quality Vincent Spares including multiplate clutches for twins, oil leak eliminator kits, socket head tappet adjusters, paper element oil filters and lots lots more. Ships worldwide. Email for a price list to nvidean@optusnet.com.au

VOC Spares Company Ltd, UK: Full range of Vincent Spares. Ships Worldwide. Visit their web site for more information http://www.vincentspares.co.uk.

Coventry Spares Ltd, USA: Fantastic service and deep product knowledge plus extensive range of excelent Vincent Spares and tools. Ships Worldwide. See website for more information http://www.thevincentparts.com

Conway Motors Ltd, UK: Anti-Sumping Valves, Multi-Plate clutch conversions for Comets plus an extensive range of excelent Vincent Spares. Ships Worldwide. Email for more information steve@conway-motors.co.uk

Fastline Spokes, based in Broadford, Victoria, can supply Australian made spokes for just about any bike. Owner Bruce Lotherington manufactures spokes to order with a turn around time of less than 1 week. For more info see www.fastlinespokes.com.au or phone (+61) 0411 844 169

Union Jack Motorcycles, Australia: Full range of Triumph, Amal and control cable parts, plus an extensive range of Vincent parts. Ships worldwide. More info at the website www.unionjack.com.au

Paul Goff, UK: A massive range of electrical spares and replacements including 6 and 12V quartz Halogen bulbs, LED lamps, solid state voltage regulators and lots lots more. Ships Worldwide. PayPal accepted. See Paul's website for more information www.norbsa02.freeuk.com

VMS, Holland: 2x2 leading shoe brake kits for Vincents; high quality 30mm wide 4 leading shoe system. Email vspeet@vmsmetaal.nl for info.

François Grosset, France: Electric starter for Vincent Twin. Electronic ignitions for Vincent Single and Twin supplied complete with drive gear. Email pontricoul@gmail.com for more info.

Cometic Gaskets: Modern, reusable gasket sets for Vincent twins and singles. If you actually USE your Vincent you are made not to have these. Contact Paul Holdsworth of the VOC Chicago section c/o phpeh@hotmail.com Located in Chicago IL USA.

Nuts n Bolts:

Classic Fastners, Australia: Their aim is to supply obsolete and hard to obtain fasteners for your restoration project be it a professional or private venture. The print catalogue, available for download, lists the current complete range. Ships Worldwide. http://www.classicfasteners.com.au/

Precision Shims Australia: All types of shims made to your requirements, ships worldwide. More info at their web site www.precisionshims.com.au

V3 Products (see entry under Spares above) also stocks a large range of Vincent specific nuts n bolts.

Keables, Australia: The original nut n bolt specialists who are able to supply just about anything with threads and bits to match such as taps n dies. Recently have relocated to 11 Braid St, West Footscray, Vic. Ph 03 9321 6400. Web site www.keables.com.au

Restoration Services:

Steve Barnett, Australia**.** Master coachbuilder and fuel tank creater who does incrediable workmanship; located in Harcourt, Victoria. Ph +61 3 5474 2864, email steviemoto@hotmail.com

Ken Phelps, Australia – Qualified aircraft engineer and builder and daily rider of Norvins for over 30 years, who has the skill and experience to carry out overhauls, rebuilds, general repairs and maintenance to Vincent HRD motorcycles. Full machine shop facilities enabling complete engine and chassis rebuilds, Painting, wiring, polishing, aluminium welding and wheel building. Ken Phelps Phone: (61+) 0351760809 E-mail: ogrilp400@hotmail.com . Located in Traralgon, Victoria, Australia

Outer Cycles, Australia: Jim Browhly is a master craftsman who manufactures bespoke motorcycle exhaust systems for classic bikes, no job is beyond his capability, so if you do need a new system that will be made to your precise requirements, give Jim a call, telephone 03 9761 9217.

Grant White – Motor Trimmer, Australia: Specialising in Vintage and Classic Cars and Motorcycles. Located in Viewbank, Victoria. ph 03 9458 3479 or email grantwhite11@bigpond.com

Ace Classics Australia is a Torquay Vic. based Restoration business specialising only in British Classic and Vintage Motorcycles. Complementing this service, they provide in-house Vapour Blasting, Electrical Repairs and Upgrades, Magneto and Dynamo Restoration plus Servicing and Repairs to all pre-1975 British Motorcycles. They are also the Australian Distributor and Stockist for Alton Generators and Electric Starters. Phone on 0418350350; or email alan@aceclassiscs.com.au . Their Web page is www.aceclassics.com.au

Terry Prince Classic Motorbikes, Australia: Specialises in development and manufacture of high performance components for Vincent motor cycles. For more information visit the web site **Click Here** or telephone +61 2 4568 2208

General Services :

Peter Scott Motorcycles, Australia: Top quality magneto and dynamo services, from simple repairs to complete restorations plus a comphrensive range of associated spares. Provides hi-output coil rewinds with a 5 year warranty. For more info contact Peter on (02) 9624 1262 or email qualmag@optusnet.com.au

Ringwood Speedometer Service, Australia: Experts in the repair and restoration of all motorcycle, automotive and marine instruments. Smiths cronometric specialists. Telephone (03) 9874 2260

Dyson M/C Engineering, Australia: Wheel building, Crank rebuilds, Bead blasting, Rebores & Engine Rebuilds and more. Located at 12 Chris Crt., Hillside, Victoria. Phone 0400 817 017

Piu Welding, Australia: Frank Piu is a master welding engineer who works with Aluminium as well as steel. No job to small. Has been recommended by multiple OVR readers. Phone 03 9878 2337

MotorCycle Fairings, Australia: This crew are are total professionals when it comes to painting. Expert service, quick turnaround and fair prices. http://www.melbournemotorcyclefairings.com.au/
Ph 03 9939 3344
