



TECHNICAL TOPICS

*A series of technical tips and articles
reprinted from La Vera Vista*

Oil, General Maintenance,

&

Storage tips



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A gaggle of Laverda 81 Jota's, shot taken at Redax Laverda Engineering in Australia.

TOP TIPS ON RUNNING YOUR RGS

by Alan Cudlipp/LVV138

Since I bought my RGS in the Spring of 1989 it has now clocked up almost 96,000 kms., over 76,000 of which have been in my ownership. During this time it has let me down only twice (more of which later), and it still scores highly in the grin factor!

The heart of the matter, that wonderful engine, has an annual service and tune (on the rolling road) by Steve Winterton at Calere, with the rest of the maintenance done by myself; the engine has never been apart and oil consumption is negligible, due to oil changes at 1500-2000 miles using good quality 20/50 grade (Valvoline 20/50 Racing Oil, available from a local motorists' discount shop). I would recommend the use of 'Slick 50' friction reducer.

Over the years I have found a number of useful modifications and alternative sources for spares, some of which I list below: -

* Copper exhaust gaskets are available from your local Honda dealer—they are the same fitting as a Superdream (but they always want to know why you want three!)

Copper exhaust gasket rings Honda equivalents, 35x42,7x4 mm.

Looking at the cross reference sheet in the store:

Honda CB 450S, VT 600C, XL 600V '87-'99, NTV 650 Rev. '88-97, XRV 650, CBR 900 RR '92-99

From "LINK" motorcycle parts supplier, these are the more modern style exhaust gasket, same diameters but thicker and made from some form of expandable material, Part number # 50 100 01 (10 pk), Exhaust Gasket, 152-14613-00

* Silencer mounting blocks are the same as exhaust mountings for a Renault 4, and they are available as a single block (i.e. with one threaded stud each side) which is better since only one stud ever snaps at one time!

* The headlight is the same as that from a FIAT 126. and benefits from a 100/80w bulb (I'll just point out that the legal maximum is 65/60w.-ed..)

* The air filter is almost an identical match with the filter from an Escort RS2000 (Mk II up to 1980), the only exception being that the Ford filter is approximately 70mm longer. It is a simple matter to cut the end off the new filter using a sharp knife, then using the old filter as a template, cut the new one to the correct length and stick the end on using Superglue. This may sound a bit of a bodge, but I can assure you that it is an excellent modification! Compare the prices of the filters too...

* The factory manual recommends that the cam chain and primary chains are changed at 16,000 miles (25,000 km.). This may appear to be a little over the top, however, when you consider that a full set of top quality German Iwis chains are available at less than £35 to your door (Sprockets Unlimited : Tel 01386 831341). it is a false economy not to change them—do you know the cost of an engine rebuild?

Is difficult to purchase the correct chains these days for your Laverda but there are a couple of sources available.

Best person to contact in the UK is Andy Chain (not his real name). He is a chain dealer and fellow bike rider with a wealth of knowledge. For Australian owners, contact Redax Laverda Engineering, we have purchased a large supply of chains from Andy and all are in stock. redax@squirrel.com.au

The Chain Man
Gloucester Way
Bewdley
Worcestershire
DY12 1QF
Telephone: 01299 403688
Mobile: 07860 577919

Email: andy@the-chain-man.co.uk
<http://www.the-chain-man.co.uk/contact-me.html>

Required chains are.

Triple;

Cam Chain, IWIS G-67-WZ

Primary chain; to suit RGS style, 2 x Simplex chains, IWIS G-67-HP

Primary Chain, Duplex, IWIS D-67-HP, this is actually also a Mercedes Benz chain and is recommended as a replacement for the original Triplex chain which is not available anymore.

750 Twin.

Cam Chain, IWIS D-67-ZN

Primary Chain, Duplex, IWIS D-67-HP, same as the triples

* I have spoken to many owners who complain of poor starting, a problem from which my bike also used to suffer. I traced this back to the quality of the spark plugs, and I now use NGK B9EV which, although expensive, give excellent starting performance every time and are long lasting.

* I would thoroughly recommend the use of a 'Scott oiler' chain lubricator which works by vacuum, and in simple terms, the faster you go the more oil is dripped onto your chain. 'Scott oilers' are simple to fit to Laverda's, and the special oil supplied with the kit lasts for years. I have heard a number of owners say their bike doesn't do enough miles to warrant fitting a 'Scott oiler', but in reality this argument doesn't make sense-using one makes the chain last longer (my previous chain lasted 40,000 km.), and also requires less adjustment. It also makes less mess than conventional aerosol chain lubes, and five minutes with Jizer or Gunk has the rear wheel spotlessly clean.

* I have used Avon Super Venom tyres for a long time, and find that they give a good combination of wear and grip (20,000 km. front, 9-10,000 km. rear). However. I use a 130/80 section on the rear because I find that this gives a much larger footprint without 'overtyping'.

* Should you ever need bearings or seals (e.g. fork seals, wheel bearings, etc...), then try your local bearing supplier. You will, of course, need the number stamped on the bearing or seal, but you should find that the prices are good and most are available 'off the shelf'.

* Those of you that use a tank bag will probably have difficulty in finding one that is a good fit on a RGS tank—'Baglux' make tank harnesses with a range of bags which fasten to the top of the harness, and I found that the harness made for Honda CBX550/VT500 is an excellent fit. Mine has been well used for the past five or six years and is still in good order. One point to note—the harness has a cut-out in the middle for the fuel cap and you need to put a soft cloth under this otherwise the base of the bag abrades the paint on the tank.

* Most bikes (mine included) are laid up over the Winter months, and this is the time when the battery needs most attention. With a little care you will find that the battery can last a long time; my recommendation is to remove the battery from the bike and flatten it (use a headlight bulb), then recharge the battery using a 0.5 amp trickle charger for the required length of time [i.e. 48 hours for a 24 amp battery). Store the battery somewhere warm, such as the airing cupboard (yes, I manage to get away with this!) and every month trickle charge it for 3-4 hours. When the time comes to refit it to your bike, you should have a healthy battery. Mine has now lasted six years and is still going strong.

I mentioned earlier that the bike has let me down on two occasions—the first time was when the gear selector spring snapped and the gearbox was stuck in first gear. A 30p spring caused a lot of hassle, particularly when I was 300 miles from home! The second breakdown was even further from home—I was in Norway. The problem was failure of the clutch, caused by contaminated hydraulic fluid blocking the holes in the master cylinder piston. Fortunately a local garage had the equipment to help me repair it.

Other than these two problems, the bike has proved to be very reliable; it has taken me on some wonderful holidays to France, Spain, Belgium, Holland, Germany, Switzerland, Norway and Breganze in 1993. It is an excellent long distance tourer, and has made me want to do the Simplon Pass again!

Hopefully some of the tips and recommendations I have given will be useful to you; there must be many more, so do as I have done, and get writing. Don't forget that one of the main objectives of the club is to encourage the knowledge and enjoyment of Laverda's so please 'do your bit' by passing on your tips and suggestions to us all.

'RUNNING AND RIDING' REPORT

by Alan Cudlipp/LVV160

Some years ago I was asked to write a report on my experience with my RGS, which at the time had covered some 90,000+klm. The resulting article referred to modifications I had made and parts sourced from alternative suppliers which proved to be cost-effective and reliable alternatives. This article appeared in LVV 5 or 6 years ago.

The RGS, which I have owned for twelve years, has now covered 115,000km (over 70,000 miles). Annual mileage in recent years has unfortunately been less than I would have liked, but this has not been due to any failings with the bike, just the ever increasing problems which more and more of us tend to encounter—lack of time and pressure of other commitments.

However, having recently relinquished my responsibilities within the Club after approx 10 years, I promised to make the time to put fingers to the keyboard to put a few of my opinions on the fabled pages of LVV.

First and foremost, the RGS has been, and still is a hugely enjoyable and reliable bike to ride (as the mileage will testify), and minor problems excepting (more of which later), the engine is still in its original form and has never been apart. Major surgery has been limited to replacement of the gearbox mainshaft and associated seals and bearings (this is the splined shaft upon which the gearbox sprocket is mounted). The splines had worn to such an extent that the sprocket rotated at least 5° on the shaft, due to the use of pattern sprockets—be warned!

The clutch is now pretty noisy, although this was improved some years ago by manually dressing every one of the splines on the clutch basket. The anti-rattle springs on the clutch plates broke years ago (as they do) and I didn't consider it necessary to replace them.

Very few people bother to re-install these pesky little anti-rattle springs these days. Appears the factory installed them in 1981 models and on to try and dampen the clutch rattle to help them pass the vehicle noise laws that were starting to be applied in those days. There is no other valid reason for them to be installed where they are, the plates are held in place by their "teeth" so cannot move against each other.

Primary drive and cam chains are replaced every 25,000km with top quality German Iwis replacements (from Sprockets Unlimited). You should also compare the cost....

Oil consumption is still nil, helped by frequent oil changes (every 1,500-2,000 km) with Valvoline 20/50 Racing Oil. This is available from local motor factors at £13 per 5 litres.

One of my biggest complaints concerns the suitability of replacement ignition systems. The original Bosch system, when correctly set up, has proved to be very reliable. However, one of the amplifier boxes failed some years ago and I managed to source a second-hand replacement: more recent failure of a second amplifier resulted in me opting to buy a tried-and-tested Moto Witt system. The latest ones are fitted with the simple but highly effective 'optical eye', which when mated to the programmable ignition box results in a reliable and very responsive system. I had mine set up on a rolling road by a recognised Laverda expert and the results were truly amazing; the top gear roll-on (sounds like a new anti-perspirant) is now markedly improved, and, more importantly. the starting performance is 'first time, every time'—just as it should be.

I would also like to record a few words about suspension. My RGS had the original Marzocchi Strada's fitted when I bought it in 1989. A bit like Pirelli Phantoms, these were the bog's dollocks at the time....

A pair of Fontana units soon followed, which I chose in preference to Koni Dial-a-Rides for the simple reason that they looked better! These proved to be reliable units over the years, although it was noticed that they did become more spongy as the miles added up.

Fellow Club Member Mick Green bought a pair of hugely-expensive Fournales units for his SFC 1000 prior to our trip to Breganze in 1992, and couldn't sing their praises enough, so when Mick decided to sell the bike some years later, yours truly ended up with the Fournales on the RGS! He was right too. The Fournales units (with the essential air pump) are easily adjusted to suit loads and conditions and are really compliant over the worst of surfaces.

The suitability of these units to the rear of the bike unfortunately showed up the deficiencies in the original 38mm Marzocchi front forks. I have experimented with spacers, different grades of fork oil, fork brace and new springs, but have been unable to cure the pattering from the front forks which spoils the ride and handling of an otherwise excellent bike.

The conclusion to this problem was for the forks to be removed and delivered to the works of Maxton Engineering in deepest Cheshire, where they will be completely stripped and revalved, redamped, resprung and resealed to Maxton's own design. When I delivered the forks I was impressed by the cleanliness and orderliness of the workshop and hope the results will be worthwhile—watch this space! And so to the unleaded saga.

Hasn't there been so much CRAP in the press about the need for unleaded conversions?

You will no doubt have seen and read the adverts from so many engineering firms jumping on the bandwagon, enticing unsuspecting punters to spend hundreds of pounds unnecessarily.

We all know that the 'old'(Breganze) Laverda's required leaded fuel when it was available. There are now so many additives on the market, some of which are good, some not....!

My personal experiences have lead (pardon the pun) me to use Redline Lead Additive with ordinary unleaded fuel in the RGS, purely for peace of mind as much as mechanical sympathy. Over 5,000 fairly hard miles has resulted in no recordable valve seat recession.

Fellow member Tony Winterton commutes over 100 miles per day on his RGS, using ordinary unleaded without an additive, with similar results.

For those of you who run twins and triples, including those with a higher compression ratio (Jotas etc.) please bear in mind that the use of an additive with unleaded fuel is likely to provide reliable results for many years and tens of thousands of miles. If the time comes when the seats need replacing, then it's time to give your money to a reputable engineering firm. In the meantime, why spend many hundreds of pounds unnecessarily? Why fix it when it ain't broke?

And so to my last bit. For those of you that enjoy using their bike for touring, the choice of luggage has always been a topic for debate. Three or four years ago I was flicking through the pages of the M&P catalogue and was very surprised to see that Hepco and Becker manufacture fitting kits for their hard luggage specifically for Laverda's. Further enquiries lead me to ordering a pair of panniers and fitting kit for the RGS. Six weeks later I had a real test for my 'O' level German when I realised that the fitting instructions weren't in English, but this turned out to be reasonably straightforward. I have been very pleased with the quality and durability of the equipment, which has proved to be waterproof and easy to use (one key fits all locks). The style of the luggage suits the lines of the bike, and the rack (for tent etc.) is easily removed.

However, a word of caution....Returning home this year from a superb holiday in the South of France, I had a very lucky escape with a low-flying pannier! I had just left the motorway and was accelerating away from a roundabout when the bike squirmed and shuddered; I glanced round and was horrified to see one of the panniers bouncing down the outside lane behind me! A rapid recovery followed, and my investigations found that the rivets securing the locking mechanism to the pannier had sheared, leaving the lock still fastened to the mounting frame and the pannier doing

its best to upstage the following Volvo. Fortunately, the pannier ended up with only gravel rash and assistance from my extensive range of tools and spare fastenings soon had me on the way again. But the results could have been a hell of a lot worse. For the record, the panniers were not loaded in excess of the manufacturer's recommendations.

The thoughts, comments and opinions are purely personal ones, but I hope they all add up to help you with the running of your trusty steeds.

Don't forget, they were designed to be ridden, and ridden hard—so get out there, do it and enjoy it!!

Ride safe.

RGS—PROBLEMS SORTED

by Alex Sarbinowski/LVV164

It was not a joyous event the day I bought my RGS, instead it was a case of "oh my gawd, what have I done to deserve this".? Grimacing through that night over four years ago I was ill prepared for various short comings which marred my first acquaintance. A ball busting hard suspension, wayward headlamp, mirrors projecting kaleidoscope images and an engine response in the lower reaches which should not be tolerated which should not be tolerated on any motorcycle this side of Watt and his Steaming Kettle— The Laverda experience was not favourable. However, 40,000 klm's down the road I think it is sorted to the point of being sanitised. (well as far as a Laverda can be)

Before going further, I must state that my RGS has no season. It has to be ready perhaps two or three times a week for my riding pleasure.

PLASTIC

Whenever I see an RGS, invariably the plastic components appear at odds with each other and in a parlous state. Generally, the flexi bits tend to distort, droop and go out of kilter with adjoining components. In fact, the method employed by Laverda to suspend the main fairing has to be questioned as it relies on four screws to attach it solidly to the rear to the tank and a further three screws fastening it to a flexible rubber bush via a metal frame. Every time a road irregularity is encountered, fairing front is free to genuflect whilst rear part remains solid—as I see it, the fairing is tearing itself apart. Further, although Bayflex material may replicate its original shape in the event of a knock, it does fatigue when subjected to vibration (and 120° Laverda's can vibrate, especially around the nether regions) leading to cracks.

There was no doubt that the main fairing needed attention regards fitment and stability. Firstly, cause of the headlamp displaying a certain independence was eventually traced to the top edge of fairing aperture being about 1 /2" lower than the top edge of the headlamp glass. Initially, this was accommodated by gently easing the aperture over the glass when offering the fairing to the bike. Unfortunately, this put undue strain on headlamp mounts, resulting in one or more ball and socket joints dislocating and a headlamp insecurely affixed. The remedy here was to take 1 /2" out of the lower support bracket and reweld (this may vary with individual bikes)

The fairing's disturbing habit of plunging downwards every time a road irregularity was encountered was blamed on the Isolastic bush suspending the fairing mainframe and allowing too much flexure.

To overcome this I replaced the bush with an aluminium alloy solid of similar dimensions. Now there is less mirror vibration, no genuflecting and hopefully a reduced tendency for the fairing to crack (screws holding fairing to tank don't slacken and fall off any longer). Note : some RGS's employ a bush with harder rubber, so above may be academic.

Side panels have shown signs of cracking around rear suspension area. The remedy here was to glue a rigid post inside the panel between top and bottom, just aft of the rear suspension unit to damp down destructive vibrations. Generally, with patience and judicious shimming, hacking, fettling, bending and welding, the plastic components can be made to fit better.

SPARKS

Numerous embarrassing refusals to start hot or cold indicated that the original Bosch system was beyond its best. Coupled with the hesitant nature of the advance/retard electronics dictated that a Todd system would be most suitable.

Fitting was straightforward with clear, precise instructions—time to hit the button. Things didn't erupt immediately, but this was put down to a less than par battery. Unfortunately, matters didn't improve a great deal with a new battery. Even on a warm day 30 seconds of engine churning were required before it would burst into life. I yielded to the idea that this was all part of Laverda character. On the bright side, gone was the nasty advance glitch and general running was fine.

With the arrival of colder weather came a test of my patience. Starting became a lottery with odds slightly reduced if the battery was left on charge previously. Even then, one's breath was not held as invariably the battery would expire before a cacophony of combustion hit the air.

I was disappointed with this system's cold starting ability. Even with a less than perfect battery, I expect more or less instant starting. Whatever I tried (and that included cleaning terminals and reducing the pick-up gap), cold starts were fraught, being long-winded and unreliable. Perhaps the price of the unit should have included an alternative sensor and dispense with the Bosch pick-up items. (I suspect that if the bike is used occasionally, fine days only, any poor starts can be tolerated and attributed to cobwebs, below spec, battery or just one of those things).

Enter the Witt system. With my "get by" German I managed to install the unit and optical trigger without too much difficulty. Moment of truth and what a difference! Instant start from cold even with a half dead battery, on a Winter's day. Gone is the uncertainty replaced by what should have always been.

BOUNCE

The original rear units were atrocious. Even on their softest setting, the merest road imperfection would send my glasses rattling to the point of impairing vision. Why Laverda saw fit to put springs suitable for a dumper truck is a mystery. However, I wasn't enamoured with fitting costly replacement items and enquired at Miura as to whether they could supply softer springs to go with the original units. Happily they could— problem solved.

FLUIDS

The thought and expense of changing oil every 1,000 miles as suggested doesn't really appeal to me. Instead, Harley Davidson multigrade (apparently designed for roller bearing engines) gets shoved in after 4,000km {2,000 miles) as per instruction manual. No signs of disintegration yet.

Over the last 6,000 miles or so, I have used LRP without any additive. So far, no valve seat recession has been noted and generally the bike runs fine with no sign of pinking.

TORQUE

There seems some confusion, or at least ambiguity, in the RGS manual regards head tightening. English translation recommends 32 lb.ft. for all six cam caps (which includes six 9mm dia. through studs holding the head and barrel and six short 8mm dia. studs which fasten caps only) and the remaining through studs (9mm dia.) at 28 lb.ft. However, the Italian version states 30Nm.(22 lb.ft.) for 8mm dia. studs (i.e. six of the cam cap fasteners) and 40Nm.(29 lb.ft.) for 9mm dia. studs (those that hold head, barrel and remaining cam cap fixings). If the English description is followed, not only are the torque values higher (no doubt plenty of scope for stripping threads, especially the 8mm dia. cam cap studs), but the main through bolts are subjected to two levels of torque. Something obviously got lost during translation, so I'm going Italian on this one.

Even at 22 lb/ft for the 8mm studs you will risk pulling the thread out of the head, highly recommend no more than 18 ft/lb for the 8mm studs.

If you are unfortunate to find that you do in fact have stripped studs then do yourself a big favour, repair the threads using a Timesert Kit, do not use a Helicoil as you will find that the Helicoil will pull out further down the line and then you have an even bigger problem. Use a double length Timesert and thread repair will last forever.

DISTURBING

Whilst writing this my RGS decided not to charge its battery. Sadly, I took the expensive option of replacing the regulator only to find that the stator was significantly chewed up (should have done an electrical ground check first). What concerns me is the cause of failure which was attributed to a plunger from the starter clutch mechanism breaking up and finding its way to the generator with assistance from the rotating magnet—what odds of it happening again? (In fact two plungers were broken and I suspect the other one is residing in the bowels of the deep sump—hope it stays there!).

A DAY TO DAY GUIDE FOR TRIPLE OWNERS

from Gareth Jones

It must first be understood that this is not intended to be a cure for all ills. My personal views on how to care for a Laverda 1000 or 1200 are taken from some experience as owner and dealer and doubtless there will be cries of "Rubbish" at certain points and puzzlement at others. However, it must be understood that I make my living from selling and servicing Laverda's and I am attempting to encourage owners to maintain their machines as far as they can but not to enter areas of maintenance that require special knowledge or know-how, so here goes:

1. General Points

Always keep a Laverda clean. Not necessarily for cosmetic benefit but because cleaning a bike carefully can bring to light loose nuts and bolts, bad wiring, dirty fuses, worn out chain, splits in tyres, etc.

2. Always Check Tyre Pressures; Big Laverda's are sensitive to low or high pressures; ideally 29psi front, 31psi rear.

3. Always Use Genuine Laverda Parts for Spares; Other parts can be unreliable and if fitted can reduce resale value of your Laverda.

4. Oil; Always use 20-50 grade oil in your Laverda engine, 10-40 WILL NOT DO. We recommend Duckham's Q 20-50 for the UK and an oil change every 1,200 miles.

5. If you have a problem with your bike, please tell your dealer the FULL STORY, which can help in getting to the source of the problem quicker and more cheaply (i.e. has the bike been in a crash?)

6. Always be careful if you steam clean your engine to protect the ignition parts from water ingress.

7. Never "Fiddle" with a Laverda; If you are going to do a job. get all your information straight and see it through. If in any doubt, take the bike to a Laverda specialist, even if it is 100 miles away—it is worth it, believe me! Most of the service work we do is down to putting right a half-started job. The motto must be "If in doubt, keep your fingers out!"

The Laverda triple is largely a very reliable beast and if treated properly will give great service to its owner, as long as the owner gives great service to his Laverda.

ENGINE MAINTENANCE TIPS

Valve Gear—A vital area. Check valve clearances every 3,000 miles. Ideally 0.008" inlet and 0.010" exhaust (+/- 0.001"). Never grind the shims or valve buckets. If you do not have a torque wrench, micrometer or shims, do not attempt the job. Do not overtighten the cam chain—if you have a severe slack point in the chain, then it is probably worn out. By over-tightening the tensioner you can break the blade and then the fun starts! We recommend a cam chain replacement at a maximum of 20,000 miles, possibly sooner.

Timing—Ignition timing is fixed—do not "fiddle" with it. If you remove camshafts, remember to line up marks and always turn the engine over by hand once reassembled before trying to start it just to make sure nothing is coming up when it should be going down!

Ignition—I could write a book on this one. Most problems are owner-caused, first, always use Champion N2 plugs in the Jota or Mirage models. OTHER MAKES WILL NOT DO. For the 3C and 3CL/Jarama, N3 Champion or Bosch equivalent are fine. If you convert to a Jota spec, you must change the plugs to N2. Never check for spark without the plugs being properly earthed to the engine or you will blow your ignition! In fact, if your engine fails to start, check all the obvious first.

1. Do you have any fuel?

2. Do you have an air-lock in the fuel tank?

3. Is your petrol full of water/filth?

4. When did you last change the battery?

5. When did you last change your plugs?

These points may seem rather basic but are largely responsible for failure to fire the engine. If these areas do not seem responsible, then obviously something more expensive has gone wrong. The only way to check your ignition unit is to substitute another for it and so on with other electrical components in the system. The later 1978 and 1979 models do appear to be less sensitive to problems than earlier triples. Always check that your connections in the system are sound and greased. A brief but regular check should resolve problems completely. This basic rule applies to all the electrics of Laverda's.

Carburation—Contrary to popular belief it is almost impossible to tune a triple without the aid of vacuum gauges, all Laverda's will tickover consistently if properly tuned; so, unless you feel like investing in a set of gauges, leave it to someone who has a set. An important point on Dell 'Orto carbs is that the so-called mixture screw actually controls the amount of mixture, not its quality—so, screwing outwards increases mixture; inwards decreases and makes the overall mixture weaker. This is the converse to most common carburettor types and hence a lot of blue exhaust pipes on triples! Ideally, 1 1/2 to 2 turns out is the best setting.

Primary Chain— Do not overtighten this chain. Unfortunately, it is a noisy component, particularly when associated with a slightly worn clutch. Clutch "chatter" is frequently confused with a worn primary chain. If in doubt, ask someone experienced to listen to the chatter. It is very difficult to visually check a primary chain because there are so many links—a small amount in each link adds up to a considerable stretch. As a guide 15,000 to 20,000 miles is a good time to change the primary chain. Not until you mount the new chain will you see the amount of stretch in the old one. Always use Regina chain because the pitch length is exact.

Cycle Parts-Basic Maintenance—This is easy and obvious, checking nuts and bolts on engine and frame, swinging arm, etc. A shot of grease in the swinging arm every 3,000 miles is a good idea. Chain tension is important and over-tightening is a common fault, especially with the new suspension type where the shock absorbers are laid forward, swinging arm travel is longer, and therefore always check chain tension with the bike off the stand. Don't forget to lubricate your chain, it is amazing how many people do not bother! When adjusting the chain, do not forget to release the lockbolt on the caliper stay-arm.

Front forks—These can be a problem area-wiggles and weaves can be down to tired fork oil or unequal amounts of oil in each leg. Changing fork oil seals is not difficult. If your seals are leaking, then correct it before complaining of poor handling. Use 10 grade fork oil, except for track use.

There is no doubt that Laverda is still the Ferrari of motorcycles—treat her like a Ferrari; that bit of extra maintenance will add to the pleasure of owning the finest sporting motorcycle in the World.

Safe riding!

RGS RUNNING

from David Booth. LOC, Canada

Ed's Note : David raised a number of points about his RGS on which he has covered 14,000km (the last one in Toronto, it sat in a dealer's for 3 years)—these answers are based on info supplied by Mick Han, which may be of general interest.

1. Poor Idling—blamed on standing in the dealers', allowing the carb seals to dry out and petrol turning to varnish.

Any proprietary carb cleaner will remove petrol deposits and all jets can be removed for inspection/cleaning. Dry seals should not be a problem—dismantle with care to avoid damage. Subject to the idle mixture adjustment screws actually having an effect when turned in and out (thereby confirming carb body drillings are clear), it is felt that your problem is more likely to be carb balance. Before getting down to it check valve and ignition trigger clearances; carry out a compression check; change spark plugs; check ignition timing and advance/retard operation (strobe). Possible points to look out for are sticking float needle valve, pilot mixture screw not seating down fully (check alignment of taper point with carb drilling), dirt/water in float bowl/fuel tank. If all else fails, get the crank throws checked to confirm 120° spacings (use a TDC indicator and degree disc on end of crank). A new carb is almost definitely not needed!

2. CO readings vis-a-vis possible ignition deficiency.

You are not sufficiently explicit on this point to allow a meaningful answer. Where did your 4% figure for Laverda's come from and to what conditions does it relate? Laverda's at Uckover are extremely rich (2-2.5%) otherwise the engine stops : perversely, they produce maximum power when running slightly weak!! Under load, the accelerator pumps will have a momentary effect—was your analyser catalytic (slow response) or infra-red (quick response)? Because of these points, it is unreliable to use CO readings for taking decisions about ignition breakdown—the system is up to race use and no-one here has encountered problems under such conditions. Check those plugs again....We don't know of anyone using 'high performance' coils—Laverda's don't rev that high. At what rpm did your apparent breakdown appear? Why bother with CO analysis anyway? -if you're looking for peak power a dyno or rolling road is the answer. The most reliable guide to carburettor jetting is exhaust gas temperature, and specific fuel consumption/bhp—more practically a plug chop, secondly exhaust colour, finally oil temperature. Aiming for a spurious peak power CO reading is no substitute : you can tell if the main jets are about right by studying the effect of steady running at maximum speed on the road. They're too big if the motor seems to be holding back, or too small if the bike surges forward when backing off the throttle a little. You need a lot of level, clear road for this!

3. Airbox—yes the intake rubber is small. The factory designed it that way to ensure airflow was supersonic, thereby reducing intake roar.

Favourite mod is to adopt "Corsa" practice and cut two 40mm diameter holes in the bottom of the airbox. Increase main jet size to, say, 125 (from 118 stock). Mick Hart ditched his intake rubber—I retained mine to preserve a quieter ride (Mick has Jota silencers fitted!). Duct tape over the rear mudguard cutaway where the rear brake hose passes through to avoid the muck being drawn in—the battery will stay cleaner too! Although you say that the induction and exhaust are small, bear in mind that they were very carefully designed so that the standard engine works well with them. A good 'un will pull 8,000rpm after all!

4. Exhaust systems—the story of 3-into-1's is quite straightforward. The factory system puts a hole in the mid-range delivery to boost peak power a little. Since the RGS is already a bit weak up to 5,000 rpm, fitting a 3-into-1 is not a good idea. Lovely noise, though! Again, better to adopt Corsa practice and increase the stock silencer's outlet diameters. This involves either outright purchase or a fair bit of cutting and rewelding/rechroming. Windy Corner provided this service—and may still do. Otherwise, submit to what everyone else does and bolt on Jota pipes, increasing main jet size slightly. This is illegal, however, and of little benefit to the power output of otherwise standard motors.

ALL OIL;

from Dave Howling, Australia

I've been using Amsoil 20/50 synthetic racing oil for about 8 months in my RGS, and the only noticeable advantage is that it runs cooler. On a recent 2,000 km weekend run in very hot weather (40°C+) the bike didn't use any oil whilst riding companions went through at least half a litre of mineral oil.

A friend who uses it in his Mazda rotary changes it every year and the filter every 4 months with no ill effects, in fact it runs better than others he knows of. Amsoil is fairly readily available here in Adelaide at \$69 for 5 litres compared to \$15 for mineral oil, which is expensive. I think the higher quality makes up for it—I change the oil and clean the filter every 3,500km. Does anyone know how to improve the oil filter on Laverda's? I used a Norton filter on my Triumph which worked very well.

EDs NOTE : Laverda's do not lend themselves to decent oil filtration thanks to their low pressure, high volume system. This (and the action of camshafts and gears) makes regular oil changes essential for long life. You could save the hassle of dropping the filter at every change, unless you're really paranoid (it should not be heavily contaminated after 3,500km—try second or third oil change instead).

OILY NOTES

by Henry Morgan/LVV108

Some while ago I weaned my Jota off its rich diet of difficult to obtain and quite expensive 20/50 Bel Ray racing oil for two reasons. A black or dark-coloured slime was covering the internals—you easily wipe it off with your finger, but this was not what should have been developing on this example which never does less than a 50 mile duration journey and sees regular changing of lube oil contents. Some of our Monday night 'Runs' group complained of the same on widely-differing machinery, all hardly used.

I switched to Shell Gemini and followed Shell Oil's own listed recommendation for Laverda's (in their publication coded S/34/88). For our 4-stroke machines they recommend the less common Gemini in its 15W50 form. You will commonly find Gemini 15W40, but this is not to be used, and you may even have to order 15/50 if you decide to use it. A call to Shell on 0161-488-3000 will find your local stockist.

I have found that the black deposit has vanished and all appears well. In my case it has a fleet usage value as it also goes in the Perkins Prima diesel and another two-wheeler, so it can be purchased in

25 litre size which should drop the price below £2/litre (excluding VAT) if you venture into small bulk.

Another oil quite readily available and surprising in that it meets the later SG standard is the Elf 20/50. I have found this in one litre size packs at Renault parts' stockists. It retails at £2.80 plus VAT per litre. Shell produce a Super Motor Oil 20/50 but it is even more interesting to note that this does not meet the SG standard. Referring back to Elf Oils, they are commonly specified in 20/50 form for many Renault engines so availability should be good.

I had difficulty initially in obtaining Gemini 15/50 with one supplier denying it existed, claiming it had been superseded by the thinner 15/40 for fuel-efficient light engines. A phone call to Shell soon fixed matters and I am now well pleased.

OIL DEVELOPMENTS

by Henry Morgan/LVVI23

It was during a visit to the Automotive Trade show at the NEC in 1994 that my attention was drawn to a stand advertising Fiat oils. Fiat lubricants to be precise. Unlike people at Ford, VAG and Unipart, etc.. Fiat are an oil manufacturer in their own right and they have been producing it since 1912. The aforementioned simply badge up 'bought in' oils.

The Fiat HPX is the one which I think is interesting, being a 20W60 in viscosity terms, and it meets the A.P.I. standard to an S.G. rating—it is a synthetic-based oil termed as semi-synthetic.

It is being sold for weary petrol and diesel motors with or without turbocharger and is designed to combat ageing problems such as excessive oil consumption, high noise levels, exhaust smoke and loss of compression.

Fiat's own tests claim a marked fall off in consumption after 800 miles of HPX useage with a continual decent curve on smokemeter readings after approximately 200 miles. There are further significant claims for compression enhancement.

No special preparation is necessary for switching to HPX, though a fully drained crankcase seems a good idea. You can buy HPX from any Fiat/Alfa agent in 2 and 5 litre packs. 5 litres retails at £17.15 incl.VAT (as of 17/07/94). Your local Fiat/Alfa agent can also supply a brochure explaining the oil in detail.

I will switch my Jota to this oil at the next oil service. It is not in the worn category as far as I know but the 20/60 viscosity range sounds excellent news and the availability is better than many others.

MEDICINAL COMPOUND

by Henry Morgan

Several years ago I was engaged in machine tool maintenance in a local factory. At the start of one notable day I was feeling very groggy after a fairly hefty 'night before' and I was completing the lengthy rebuild of a milling machine table gearbox. I had just started the machine up and was experimenting with the speeds and feeds when the works supervisor suddenly appeared. The conversation went broadly along these lines; 'Ah, I see you've sorted this one at last, Henry and

what's more it's not leaking oil, that's good.' 'Yersh,' I replied, 'and what's more it will never leak again, that's because it's got no oil in it.' The supervisor reeled back, hit by acetate fumes, paused then gave a benign smile as my expression must have revealed a dim but obvious recognition of what I was doing.

The past few years have seen a happier relationship with oil in machines and I have recorded in these pages various incidents with my Laverda's oil problems, perhaps black slime formation being one of the more recent worries to manifest itself. At the December Ringwood meeting we were fortunate to have a visit and talk from the president of Kalgard Lubricants and Coatings, one Richard Killen. Richard proved to be a mine of information on the subject of oils and he explained the black sludge and slime phenomenon. It appears that component parts of the oil can break down when they impinge on the very hot exhaust port area inside the engine, possibly after a certain time or mileage and this degradation creates the deposit which eventually finds its way into everywhere. There is a strong suspicion that synthetic or semi-synthetic oils are even worse in this respect apparently.

Molybdenite is a pressure-absorbing material and when added to oil in the form of Molybdenum disulphide it can prolong the life of an engine oil. It is claimed it will shield a pressure of 35,000psi before breaking down, and it can be added to an existing oil if so desired. A past problem has been in keeping the substance in suspension in the oil and Kalgard claim to have overcome this completely. They can supply Moly additive on its own or in the case of their Moty 4-stroke engine oil it is already included. I will be trying out Kalgard oil at the Jota's next oil service and will report my findings in due course to you.

There is every reason why Moly should be added to fork oil and to this end Kalgard can oblige too. Their 16 ounce bottles of fork oil in the 5, 10, 15, 20 and 30 weight oils are worth switching to if you desire stiction-free forks, apparently the difference is quite amazing. Chain lube by Kalgard Chain Kote in 17 ounce aerosol has received considerable acclaim in the motorcycle press so I hope to report on this one too as soon as possible.

I know these products are available from Superbike Services Ltd. on 01202-827496. The phone number for Kalgard Lubricants is 0181-342-9600. I am indebted to Steve Ling, a local member, for organising the talk on Kalgard Lubricants. Originating from the US/Canada you will find all the firm's products are packaged in the rather quaint US quarts and denominations thereof. Watch for further reports on these exciting products.

OIL—WHAT DO YOU USE? SINGLE OR MULTI **by Nick Juden/LVV136**

Back in LVV131 Dave Laker described his difficulty in selecting engine oil. Now, I'm no expert, but this is a subject to which I have given much thought in the past. I offer my opinions in the hope that they may reassure some owners.

Straight or single grade oils (such as Morris's Golden Film) used to be all you could buy. The technology and chemistry required to stabilise oil viscosity over a range of temperatures did not exist. Engine designs had to allow for pumping treacle when cold, but also maintain an adequate oil pressure when hot. Guess what—in general these engines had plain journal bearings, push rods or

side valves and low rev limits. Single grade oils still have their place today, but often in low maintenance constant temperature applications, such as differentials and some gearboxes, both automotive and industrial.

Multigrade oils are really where it's at these days. Modern engines (and yes, that does include Laverda's) need the oil to reach vital bearings and the cylinder heads as quickly as possible on start up. They also need an oil that can withstand high temperature peaks without breaking down— quite similar requirements to turbo-chargers in a way. Most modern multigrades are specified as suitable for turbos.

I don't intend to say much about synthetic oils. They may offer a wide viscosity range and extended service life, but is that relevant or worth the high price? Let's face it, you should be changing your oil every 1,500 miles anyway because you don't have a filter to remove the solid contaminants.

What about detergent oils versus non-detergent? My opinion is pretty straight forward on this one. Murphy predicts that sludge will do what the hell it likes—if it wants to accumulate at a bend in an oil passage and then head to the crankshaft for a party, it will! Settle out harmlessly on the bottom of your oil pan? Fat chance! So use a detergent oil to keep it in suspension, then dump it every 1,500 miles before the concentration has become a hazard.

So, we head towards my conclusion. I believe that a good quality mineral, detergent, multigrade oil is the optimum combination of performance and value. But do use a good one—one tends to pay for better additives such as friction modifiers, stabilisers, corrosion inhibitors, etc.....which may not be present to the same extent in cheaper oil.

Do change it regularly to get rid of the contaminants before they build up and cause damage.

As for the viscosity range. I believe that a 20/50 is the minimum, and a good 15/50 is excellent if you can still find one (here in New Zealand they are all going 15/40). I feel that a 10/40 or 15/40 will not quite cut it at high temperatures.

Now, let's get controversial! Before I left the U.K. I was told that Penrite HPR40 (20/60) was the oil for my Jota. That sounded like a good idea—25 weight isn't too heavy for cold starts, and 60 weight equivalent performance at elevated temperatures sounds great! But over here in New Zealand the Harley brigade have had problems with this, basically with piston rings getting sticky, resulting in some oil-burning and, apparently very important to these guys, one can't get nice grey/brown tail pipes. I have had a similar problem with the Jota, which always used to have pretty tail pipes, but then went black and sticky. So the Harley crowd (and now myself) are mostly using Valvoline 20/50.

Finally. I might have upset some single grade die-hards! These oils may have a place in some competition engines—I just don't know. But this isn't a problem for me or to the overwhelming majority of motorcyclists. So you choose, but above all keep smiling!

OIL—THE SAGA CONTINUES!

by Terry Baker/LVV 137

Having read with interest Nick Juden's LVV136 Technical Topics on the potential difficulties of choosing an oil and grade viscosity, I thought that I may offer some help, or was it hindrance?

I'm not professing to be an expert in the molecular construction of 'lubes', however what I do have is some varied firsthand knowledge and practical experience which I hope might benefit other Laverda owners.

In the early 1980s I bought my second Jota and used to go to regular drag meetings with friends who were into the American car scene.

Now for all you 'roundy-roundy' race purists who have reached or are now reaching for the crucifix and garlic, this is the only apology you're getting. Yes, I love watching circuit racing of any sort, and yes I love the 'buzz' of country roads on a Laverda. but for me the only real adrenaline pumper there is straight line, out and out. full power 'Sh*t or Bust'!

So as the 'bug' burrowed deeper into my psyche and even deeper into my pocket, I started to explore various bolt-on go faster bits, as my standard Jota needed. When it backed-up on the strip, the interest it was shown by all walks at the race meeting {you don't see many Italian bikes at the strips!) was tremendous.

Just about this time a friend had fitted full nitrous oxide to his Dodge Challenger with amazing results, guess what?

After waiting 3 million years, my direct port injection N.O.S. kit arrived from the USA via postman Pat. 'Right now...' drill that, fit that, screw this, connect them, make that, remake that and so on. Time to test on the good old M1—being too chicken to 'whack' that throttle full at standstill without knowing how it will perform, me thinks, roll on test in third gear and wring the throttles' throat. With nitrous oxide wired to activate only at full throttle, the system 'kicks in' with the emphasis on 'KICKS'. There's no buildup warning that the Homo Sapiens' senses can relate to—rev needle banging ten digit figures plus!!, and my professional thoughts and observations such as 'Oh Sh*t' and it says Laverda on the tank, what's the front wheel doing up there?' and other such thoughts unprintable in a family magazine.

The nitrous was everything rumoured and more—from standing 1 /4 mile before on the Jota at 11.88 seconds to 10.96 seconds. A full second may not seem a lot, but in perspective, it beat a lot to the wining post. Praying to Mecca seemed to be working. All this on the same Jota used to go to the Bol, holidays to France and more besides! What next methinks? Turbo comes the answer, and other people's money! The parts came via a friend in California which involves a lot of flights and extra hand luggage. Soon the 'Roto-Master Turbo' was fitted over a period of 18 months to the very Jota that I still own to this day.

Some of you are now thinking where is the connection to oil choice? Well, my nitrous oxide Jota was a reasonably well-used 180° which, upon fitting nitrous, often hit an indicated 10,000 revs. Now I'm not saying this was by design or any good for the motor, however, rev limiters at that time were expensive and not suitable. Manual gear changing had to be aided by a Murdock air shifter just to keep up!

My Turbo Jota runs without nitrous now it's on the road, but uses/makes approximately 5-12 lb. of boost and has its own separate turbo oil tank feeding via a high pressure 12v pump which is still subject to extreme temperatures that turbos produce. I have never had a mechanical failure, engine-

, combustion- or lubrication-related problem on the nitrous Jota in road or strip use, or on the turbo (kiss of death or what!!)

I have ALWAYS used the same oil, which is Duckhams 20/50 (now called Hypergrade).

I am reliably informed via my friend in the USA that this oil is more than adequate for my style of motor and the non-tuned motor. It is a minefield if you're not sure, and you listen to all the different ideas and opinions and technical blurb thrown at you by the manufacturers on the mineral vs. synthetic oils. There are hundreds of variables involved, i.e. state of wear of engine, rate of wear, where ridden, commuting, touring, racing, riding style etc...

I believe we should not get too deep in our quest for the ultimate oil. I have yet to talk to anyone who can convince me that for general road use synthetic oil is better than the standard. I agree with Nick when he talks about 1,500 mile oil changes. However, only you will ultimately know how you ride and the condition of your engine, let's face it. For the sake of approximately £9.00 per 5 litres of mineral oil, if it looks like it should be changed before your 'usual' mileage then drain it!

SILICONE BRAKE FLUID AND SYNTHETIC ENGINE OIL from Merle J.Young. USA

I offer these thoughts on Silicone Brake Fluid and Synthetic Engine Oil for motorcycles.

In 1975 I received, on request, a sample of Dow Corning Silicone Brake Fluid for evaluation from their Chicago distributor, installed in my Saab automobile clutch and brake system for two years of hard driving, it proved to be by far the best fluid on the market in North America. Silicone does not boil with high heat, as do alcohol-based fluids. It does not absorb water and eat away the metal in the brake cylinders (regular off the shelf fluid absorbs water and erodes the metal brake cylinders on the bottom where the water lays, and promotes seal leakage). 80% of racing vehicles here use Silicone fluid to prevent brake seizure at high brake temperatures. And last, Silicone is a natural lubricant to seals. It's somewhat more expensive than alcohol-based fluids—£7 per US quart, but never needs changing, and the brake systems last a long, long time with increased performance. I installed it in my 3CL last year. After 6 years of automotive exposure and the confidence in the product, my thoughts remain unchanged—knowing that my brakes will never fail through prolonged application, high heat or rusting brake cylinders.

Again, after years of exposure (seven) to synthetic engine oils in automobiles. I changed oil in my Laverda from the old petroleum-based to synthetic to combat high operating temperatures of the South Land and extended time between changes. In my Saab, I change once per year and drive 25,000 miles per year. Presently, my mileage is 125,000 with no problems and the engine is white glove clean inside. My Laverda loves it—you see, 100% synthetic oil adds to rubber seal life by giving additives to make seals soft, and does not evaporate in the crankcase at the rate of 20% between oil changes as the standard petroleum-based oil does. Aircraft turbine engines, with all that heat, could never operate on petroleum-based oils and demand only synthetic lubrication, my Laverda gets hot too and I feed her the best oil available.

Oil used is Ultron G-1050 and is 100% synthetic. Cost is £7 per US gallon. If ordered by large numbers, it would be well less than that figure. Compare these synthetic oil numbers for 10w-50 weight to petroleum-based oils now in use for motorcycles and see which one you would choose.

Gravity, API	32.0
Density, lbs/gal.	7.2 (US 20% less than Imperial)
Flash point, °F	440°F
Viscosity at 210°F	87
Viscosity index	150
Pour point, °F	-60°F

BEARING AND SEAL NUMBERS

by Ian Wilson

A letter in LVV80 did ask that I supply bearing and seal numbers: despite no one fighting their way up to my door and filling me with beer, I'll pass on what I know.

A word of warning, though. Just as there are less than honest dealers in the motor trade, so there are in other trades—seals and bearings being no exception. When asking for one of these products DO NOT accept "haven't got it, this is an equivalent". This is because the industry has some very cheap but highly dubious Far Eastern imports at the moment, with quality well down its list of attributes—for example, rubber seals containing almost no rubber!!

For bearings I would advise using SKF, FAG or Ina in that order—they were OE anyway. For seals I'd advise George Angus parts (aka GACO)—try to obtain them in material SV75 or SE70 if not. Otherwise use parts by Goetze or Freudenburg (aka CWF or SIMRJT). I would not recommend Aeroquip, Pioneer, Walker or Hillman Newby/Woodville parts as being unknown qualities. Any problems, get in touch and I'll try to sort it out.

The attached list suits 180° triples—I don't have a 120° or a 750! I'll try to find out though. I supply this as a helpful guide only, and would suggest taking the old parts with you. I suppose no dealer will serve me now—but no matter! Any major seal and bearing distributor should help—Mecro. Lucas (Lucas Seals, not Joe Lucas!). Oswald. Barnwell, Wyko will stock these—dealership lists on request!

This list is NOT complete, and is supplied so in order to meet the copy date.

OIL SEALS—George Angus numbers shown

Starter Freewheel	SMS 35477 or DPSM 35477
Gearbox Mainshaft	SMS 45607 or SMIM 45607 or DPSM 45608
Clutch Rod Seal	SMS 6197 or SMIM 6197
Layshaft	SMS 17407 or DPFA 17407 or DPSM 17407
Forks	SMS 38507 or DPSM 38507

(SMS prefix denotes latest design)

BEARINGS—All to C3 standard

Crankshaft/Primary	NK 20/16
Clutch Shaft/Cover	NK 22/16

Clutch Drum Centre	HK 2216
Centre Mains	NU 1007 (Roller. 14mm thick; if 9mm ball bearing 16007)
Outrigger Crank	16006 (ball)
Gearbox Mainshaft	LHS 68/28 NR/C3
RHS	63/32 NR/C3 (75/32 on some)
Layshaft	LHS NJ 304/C3
RHS	NJ 303/C3 or NU 303
Centre	K 20 x 24 x 17
Upper Yoke	6205-2RS or ALN 25
Lower Yoke (taper)	30205J2
Front Hub	6004
Rear Chain Hub	6004
Rear Hub	6303
Swinging Arm	HK 2538

This is not an exhaustive list, but I believe it correct and give it in good faith. As I've said before, it's probably not a bad idea to compare new with old before attempting fitment. I'm trying to fill in the gaps. e.g. outboard mains, crankshaft seals, etc.

EDs NOTE : Alarm bells ring on the centre main bearing numbers—I'm sure no one would want to replace the infamous ball bearings with a similar item! In fact, my late 1980 Jota had NF 207/C3 roller bearings fitted. Tim Parker's Green Bible detailed spec, gives incorrect dimensions of 35 x 62 x 9 for these items—they are in fact 35 x 72 x 17. Also in that section a jumbling occurs which conspires to obscure the bearing types used by the triple for the outer crank bearings—they are NJ307/C3 (LHS) and 6307/C3 (RHS). Based on my experiences, intending purchasers will find great difficulty in obtaining centre main bearings off-the-shelf: the closest I got was NJ207/C3. I cannot overemphasise the need to specify C3 fit for all 'engine-related' bearings. If nothing else, you'll come to know the bearing codes inside out at the end of the day—be warned that uninformed purchases can cost dearly in the long run. Ian's address is :

3, Nicholson Crescent
Thundersley.
Essex SS7 IRN.

Further to the above, very few people will have the need to purchase the centre main bearings for the Crankshaft as not everyone has the necessary tools to strip and rebuild a Crankshaft in their own workshop. If you do though, then it is recommended to purchase the NF207 bearings as opposed to the NJ207. The difference between the two is on which shell the bearing race is attached to, on the NF bearing, the race is attached to the inner shell, on the NJ bearing it is attached to the outer shell.

*Comment on the C3 bearing rating, this is a dimensional clearance rating that specifies a bearing with a set amount of clearance, if the bearing you purchase does not have the C3 designation then it is actually a tighter clearance bearing. We are talking microns here, not massive amounts of clearance. For my own engines that I build I prefer to **NOT** use C3 bearings instead using standard clearance bearings, makes for a quite and smoother running engine.*

POLISH. AND MORE POLISH—THE ANSWER?

by MIke/LVV134

I offer the following suggestions to consider.

1. Polishing all alloy components is a time consuming, dirty and potentially hazardous business. The work on small items such as Brembo callipers and Dell Orto carburettors also needs patience and manual dexterity, as the work will be laborious and quite exacting if your objective is a mirror finish to all surfaces. The finished surface will also require maintenance!

2. Concentrating on small unpolished castings, first take a good look at the part in question and consider the following. Surface preparation is the key to success in just the same way as it is when painting. Look particularly at the corners and the awkward areas that you will need to clean up. How will you approach these areas and what can you use to clean them up? There are a few hard and fast rules and your ingenuity in finding answers to those questions will influence the degree of success that you achieve. The following will provide a starting point :

Wet and dry papers in the following grades : 120, 240, 360. 600. 800, 1000.

Doweling stick in as small a diameter as you can buy.

Knitting needles (plastic or aluminium) in various diameters.

Wooden blocks in various widths and 3mm to 4mm thickness.

Some Swiss or riffler files in various shapes.

A sharp knife to shape the wood and a saw to cut the needles.

3. The first requirement is to strip the existing paint finish (if any) and have a good look at the nature of the surface you are about to work on. The objective is to remove all surface irregularities until you have a surface that is absolutely even with no dimples and no dips. Use the knife and wooden blocks to make formers shaped to the area that you are working on and wrap the 120 paper around these. Wet the paper and work the surface. Change the paper as soon as it stops cutting. Use the doweling and needles in the same way as support to the paper when working on sections where tight radii have to be worked on. use your ingenuity to get into all the nooks and crannies. When you have covered the whole component to your satisfaction, do the same again with the next paper (240), removing all the 120 cutting marks and improving the surface. When you have finished this, use the next paper (360) and in the same way improve the finish with each paper. After the 800 paper, you should have a perfectly smooth casting which you can bring to a mirror shine very easily.

4. Purchase a tube of a good quality metal polish (e.g. Autosol) and using a coarse cotton cloth, apply the polish to the component, using the wooden formers if necessary. Take a clean piece of soft cloth, remove the polish and buff to a final shine. If a poor or no shine develops, and on inspection there are still marks on the surface, then your preparation stages will need to be undertaken again. If this is not the case, then get 1200 paper and go over the part just as you did with the other papers and try the polish after that.... You will have to work at the polish just as you did with the papers.

5. The finished shine should be brilliant, but be warned that this surface will mark very, very easily. A slipping spanner or screwdriver when reassembling can ruin all your work. Because of the nature of

the finish, such marks will be plainly visible. Finally, your new surface will start to oxidise (and dull) from the minute you complete it so think about the maintenance implications before you start!

Larger work pieces such as cam covers and for that matter all the lower engine covers are a simpler proposition if only because you are repolishing and also their size warrants the use of some form of powered polishing. Should these parts have a factory paint finish, it is to be hoped that the castings are of the same quality as those that receive a polished finish. Most paint finishes can be removed with an automotive trade paint stripper like Nitromors or similar.

The principles are exactly the same as those for the smaller parts. Firstly prepare the surface so that it is totally free from dents and scratches and any irregularities. Consider the quality of previously unpolished surfaces and chose the grade of your first paper. Often you can start with a 240 or 360 on good quality castings. Again, get into the nooks and crannies using timber formers.

It is important that you use a timber block when preparing larger, flatter surfaces as failure to do so can result in furrowing of the surface. The last thing that I would want on a newly-polished chaincase would be a wavy 'corrugated iron*' effect running randomly across the piece. You may encounter corrosion damage or stone damage on the lower engine castings. For a perfect finish these have to be removed. Obviously it is not as simple as simply rubbing hard in places where such damage is apparent. The whole surface has to be worked back and the blocks will ensure that this is achieved.

Finally, consider getting some machine assistance if you have a lot of larger castings to polish. An electric drill and one of the various polishing kits will assist in the final stages but preparation stages are more difficult. Ideally an air-powered orbital sander capable of working wet and dry papers will cut down the work considerably. However, I would apply the last paper by hand working in straight lines in the same direction as I would intend polishing with the wheels. In this way, the orbital marks of previous sandings would be removed and the wheels will cut better if used in the same direction as the last 'paper' cut.

Polishing kits usually have two wheels (buffs) with a compound (polish) for each. Follow the instructions and take care not to overload the drill. Drills are made to take point load, as opposed to the side loads typical in polishing. A burnt out drill will add substantially to the cost of your polishing.

Finally, and most importantly, take the proper precautions concerning your health and safety. Polishing is a filthy business and the dust generated (when mechanised in particular) is abrasive and fibrous, so wear a mask. Guard your eyes and keep your clothes and yourself out of the machinery.

Done with care, superb results are possible; impatience or a simple lack of time usually prevents complete success. Any casting can be polished. Whether it makes sense to do so is a matter for the owner. My own preference is to refinish Laverda components in the spirit of the original design. Thus items that were painted are repainted. Those with less than perfect finish are improved, but those that were intended to be functional non-decorative castings are left alone. Thus crankcase halves are left alone (other than grit or bead blasting), but components like rearsset assemblies get the treatment—casting marks are removed, the visually prominent parts are mirror polished but the centres are grit blasted and then bead blasted to give them a sheen. The two finishes compliment each other and the whole assembly is simpler to maintain than would be the case if the whole thing was polished. For me there seems little sense in working hard to provide a finish that will be time-

consuming and eventually tedious to maintain. You know what you want to do, so go for it and enjoy yourself Phone 01792 403609 if you need any help.

Further to the above, photo's below show what can be achieved with a bit of effort. Minor to medium scratches, all that is required is a bit of elbow grease. Shots below taken of a Series 2 1981 Jota Alternator cover, before and after. You can see in the first photo that the cover was not real flash. First up, wash thoroughly, get rid of the oil stains.

Then we attacked it with a file, 2nd cut flat file to remove what we could of the scratches mostly around the bottom radius where the bike must have been laid down in the past at some stage.

Next up was a 120 grit 4" Flap wheel and Angle Grinder that we used to remove the majority of the scratches and to blend the repairs back in. Naturally one needs to be careful with the Alloy thickness.

Next, Wet and Dry sanding paper, starting with course grades and reducing in grit through to final polish with 600 grit. Use a flexible hand sanding pad.

Last, 30 minutes on the Polishing Wheels.

Final result can be seen in the last photo, start to finish was approx 5 hours and a 6 pack of VB Beer.





MOTORCYCLE HIBERNATION

by Andy Saunders/LVV 118

You may or may not recall back in the Jan-Feb 1993 issue I promised to reprint an article about motorcycle storage. Judging by the number of bikes we see at ILOC events I imagine this will be the most popular article I have ever published.

Thanks to Peter Davies for sending this in—it comes from the American magazine *Motorcyclist* so it reads a bit USA-ish. but I've left in the contacts mentioned as members may wish to go to the effort of following them up. Whether there are UK suppliers for some of the products covered I'm not sure but if you find out let me know.

The surest way to ruin a motorcycle is to leave it parked all Winter without taking a few simple precautions. Many more motorcycles are killed by neglect than hard use but it doesn't have to be that way. Here are the answers to some frequently-asked questions about keeping your motorcycle in suspended animation.

1. What's the best way to store a motorcycle?

The first step in preparing a motorcycle for storage is to clean the motorcycle and remove all dirt deposits. Allow the bike to dry and give it a meticulous detailing. Even if no one is going to see your bike for the next six months, detailing will give you the chance to notice potential problems and you

can make a list of the parts you need to order before next Spring. Next, give the bike a complete polish and wax job and now is the time to do the little service chores you've put off all Summer.

Now is also the time to check with the state motor-vehicle department to see if you need to register the bike as non operational, and to call your insurance agent to discuss theft coverage.

2. How should the motorcycle be covered?

A loosely-fitting fabric cover prevents dust settling on your bike while it's in storage. But no cover prevents the rusting, pitting and corrosion caused by storing the motorcycle in damp conditions. Plastic covers are usually a bad idea because they form the perfect surface for condensation. Even a sealed plastic cover causes corrosion by dripping condensation onto the bike, unless the cover is hermetically-sealed and packed with a drying agent. Cycle-Shield from B.W.. Inc.(800/950-2210) is just such a set up—a plastic cocoon that comes complete with bags of recyclable moisture inhibitor. Remember to go spray all electrical connections and switches with WD-40, LPS-1 or a similar anti-corrosion treatment before covering the motorcycle.

3. Should oil be drained?

To minimise corrosion of gears and bearings in a wet-sump engine, keep it filled with good quality engine oil. To prevent corrosion from acids in used oil change the oil immediately before storage. In Spring, drain again and replace with oil of the appropriate grade.

If your bike has a separate gearbox, the transmission should also be drained and then filled with oil of the same grade as in the engine for the storage stint—many transmission oils contain chlorine ingredients which can foster corrosion.

Dry-sump engines with remote oil tanks should be drained to prevent oil from leaking through a worn pump and filling the engine.

4. Does it help to fill the whole engine with oil?

Filling the entire engine with oil is inadvisable as it may lead to hydraulic lock: if oil fills up one cylinder completely, attempting to start the engine against the incompressible fluid can bend the connecting rod, requiring a complete engine rebuild.

5. Should the fuel system be drained?

The carburettors should be thoroughly drained to prevent lacquer from forming in the jets. It's best to remove the bowls to clean any stubborn particles. Lacquer and moisture deposits can block the tiny mixture passages inside carburettor bodies and may ruin an expensive set of carbs. in just one Winter.

6. How can I reduce corrosion above the oil level inside the engine?

After the carburettors have been drained, remove each spark plug and pour a teaspoonful of oil into the cylinder, then replace the plugs and turn the engine over on the starter for a few times to coat the cylinders with oil.

If your bike is a single cylinder four-stroke, turn the engine over until the piston is at the top of the compression stroke, so all the valves will be closed. Multi-cylinder four-strokes always have at least one valve open at every engine position, so it's not worth worrying about where the pistons are.

7. Should the coolant be drained?

With a 50-50 solution of antifreeze and distilled water, there should be no freezing problems down to -34° Fahrenheit (and remember it's the temperature in your storage area that counts, not necessarily the outside temperature). Antifreeze contains corrosion inhibitors, so it's better for the system to be full rather than empty.

8. Should the battery be drained or should I disconnect it and charge it regularly?

Remove the battery from the bike to prevent corrosion caused by venting battery gases, to prevent possible component damage or fire risk from electrical short circuits and to allow the battery to be charged regularly (an overnight trickle charge every month is fine). Make sure the battery vent tube is clear when charging and keep the battery fully charged; a fully charged battery won't freeze as easily as a flat one. Protect the battery from extremes of heat and cold.

9. Should the fuel tank be drained or full?

Many motorcyclists fill the tank with petrol treated with a stabilising agent such as Sta-Bil (available as Honda Fuel Stabiliser through Honda dealers) to prevent rust. However, storing a motorcycle with a full tank of gas may invalidate your insurance and is a fire risk, especially if the bike is stored in a garage or basement near a water heater or furnace. Petroleum vapours escaping from the tank will also attack the tyres, seat and other plastic components, especially if the motorcycle is covered.

Taking the time to drain the tank thoroughly and treating the inside with a coating of rust preventative (like Kreem, available from motorcycle dealers) prevents gas from seeping through the carburettors and washing away the engine's protective coating of lubricant; draining the tank also removes any water lurking in the bottom of the petrol tank, particularly when you're using petrol blended with alcohol or after you've been riding in heavy rain. Water quickly and expensively rusts through the bottom of a steel tank.

10. Should painted or metal parts be coated with protectant?

Painted parts should be waxed. Unprotected metal parts should be thoroughly cleaned then treated to a thin protective coating of Vaseline. Vaseline is more effective than almost any aerosol spray or grease, is much cheaper and readily available and is easy to remove come Spring.

11. What about insurance?

If you store your motorcycle outside, continue your theft coverage if possible. In these increasingly litigious times, even if the bike is stored inside liability insurance coverage is a reassuring idea, especially if you intend to store it with a full tank of fuel.

12. How long is it possible to store a motorcycle?

In a cool, humidity-controlled warehouse, it is possible to mothball a motorcycle for years with minimal deterioration. All fluids should be drained, the humidity controlled to 35% and infestation by pests eliminated. Store your bike inside, away from windows, not only to prevent UV sunlight from fading the paint but to stop thieves from spying the bike. For extended storage. It's best to recycle the battery and buy a new one later.

13. Is it possible to store a motorcycle safely outside?

If you don't have the luxury of a garage or storage area, you can protect the motorcycle from weather and thieves by building your own crate or kennel or by using The Box from Smith and Stewart (602/994-3491); The Box is a miniature garage that comes in a kit form. Even a cover gives some form of protection from prying eyes and the elements.

14. Should tyres be inflated and the bike blocked up?

If the motorcycle is to be stored for more than 6 months, then it's definitely worth blocking up the bike to keep the tyres round. Otherwise, put the motorcycle on its centre stand if it has one, inflate the tyres to normal pressure and be careful the tyres are not allowed to stand in pools of water or other liquid (like leaking engine oil). Oil puddled around tyres ruins their adhesive qualities. Park the bike on a sheet of 3/4" plywood so the wheels are slightly off the floor in case of a leaking roof or burst water pipe.

15. Should the exhaust pipes and air intake be blocked with tape?

It may or may not stop corrosion, but blocking all possible entrance holes, including carburettor vents and breather holes, prevents invasions of insects, mice, birds and other critters. Mice and rats can be a special problem because they tend to chew fabric materials and can easily ruin an air filter or even a wiring harness. Even the tiniest insect that crawls inside a carburettor can upset performance.

16. Is it best to mothball the bike or to start it regularly every month?

If the motorcycle is stored in an accessible place with a cover that can easily be removed, it may be a good idea to turn the engine over regularly, especially if it has a kickstarter. This procedure avoids the rings setting in one place on the cylinder wall.

17. What about security?

Secure the bike with the best lock you can afford, but if you're going away, give a set of keys to a responsible person (not your kid brother) so he or she can remove the bike in the event of a fire, earthquake or other act of nature. Storing the bike inside a dwelling may not be legal, so be sure to comply with city codes. Make sure those with access to your storage site know you so they won't release your bike to anyone else showing up to claim it. And if you are storing a motorcycle on someone else's property, make sure the building owner knows you and won't claim your motorcycle if the tenant defaults on the rent.

18. Is a heated garage the best place?

A heated garage is a great place to store a motorcycle, but watch out for household appliances. All electric motors—like in a washer and dryer or a freezer—produce ozone gas, which damages tyres and rubber parts. If you must store your bike in the same place as an appliance, park it on the other side of the room.

19. What precautions should I take if I'm buying a bike that's been in long term storage?

A visual check should tell you all you need to know about the bike's storage history. Avoid dusty, dirty machines with numerous oil leaks. Also, check with your local department of motor vehicles in case you're responsible for lapsed registration and subsequent penalties; in California, these fees frequently run more than the motorcycle is worth.

20. How should a cocooned motorcycle be brought back to life?

Wipe off the Vaseline, give the bike another bath, service and oil change. Install any parts you ordered, fill with petrol and add the battery. Pull out the spark plugs, add another teaspoon of oil and turn the motor over a few times to flush out the oil. Then turn the petrol tap to prime, put the plugs back, start it up and ride off into the Spring sunshine.