

# Editorial

My apologies for the late publication of this issue. What shall I blame most - the pressures of parenthood, the Scottish Show, or most of all taking rides in the glorious early spring weather on the ex John Rushworth Norturno ?

Some very useful stuff in this issue: the RC fact sheet, gen. on the Quill silencer, and a very detailed description of how to set up suspension from Joachim Heller. Several interesting G-mails and the usual invaluable hints and tips from David.

Have a good look at Niall Hamilton's ideas for an updated MkII Nordwest. We will do our best to make sure someone at Pontadera gets to see his wonderful design. Given the specification it might turn out to be rather more expensive than the original Nordie - but what a bike it would be !

It was a great pleasure to be associated with the tribute to Bob McIntyre at the Scottish Motorcycle Show. A special thankyou to John Rushworth and James Murray who helped make our stand an excellent contribution to the event, and a big apology to Raymond Ainscoe for failing at the last minute to be able to collect one of his machines - see page 4.

Now an offer - 'Motorcycle Sport & Leisure' will send you one **free** copy of the magazine to any club member who requests it. Just write to the following address stating your membership number:

Motorcycle Sport & Leisure, P.O. Box 2, St. Columb, Cornwall, TR9 6SP



*Now read on ...*

## Tyre & Exhaust Questionnaire

Many thanks to those who replied to the questionnaire. There were not enough to make any certain conclusions, but the mean tyre performance turned out as follows:

NW	DRY/WET	HANDLING
Hi-Sports	5.3/4.2	5.25
Dragon Corsa	5.5/4	5.5
Pirelli MP7	4/3	3*
Metz MEZ1	6/5	7*
Yokohama	5/2	3*

\* - only one sample

There was general agreement that a 120/70 front 150/60 combination was superior to the original fitment.

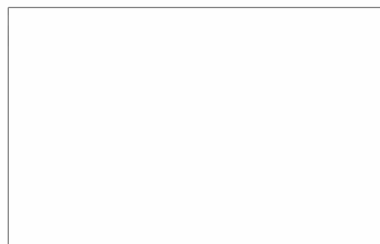
SAT	DRY/WET	HANDLING
Hi-Sports	5/5	6*
Dragon Corsa	4/4	4*
Pirelli MP7	6/5	6*

\* - only one sample

The mileages ranges were so wide it is not sensible to draw any conclusions except for the effect of the right hand on tyre life. For any particular rider the variation between different tyre makes was only around 500 Kms.

Too few alternative silencers for a sensible comparison, but the Quill seems to work well (see also page 18)

For the ultimate in grip Nigel Lee recommends



Michelin cut slicks- quote "The downhill right and left of Craner curves could be taken with the rev limiter cutting-in in top gear (15T g/box sprocket fitted). Here he is in action at Silverstone. - PSF



The date for the track day has been confirmed as Friday 15 August. Yes - I know the weekend clashes with the British GP again - they must have moved it specially to compete with us ! You will find regulations and an entry form enclosed. The Morini Riders Club is inviting several others this year, so if you want to be sure of a ride get your entry in.

Remember this is the major Gilera event of the year and we will be sharing the financial outcome with the MRC so let's have a really good turn-out. The entry fee includes lunch, and you can invite 'friends' - but in the spirit of this event (no head-bangers on Fireblades please).

## Genbinis

The Networked following prospective members (in around 18 years time?)

Claudio Crutwell and Geoff Atwin Arthur and Frederick seem that they've both very keen indeed to arrive but alas well the end.

Mike and Julie Riley report that their daughter Leeanna Eve already shows promise with her throttle hand.

Duncan Rory Fisher arrived on 30 December and I am convinced he already has an eye for a good looking bike let alone finding the sound of a Nordie motor very interesting.

☉ PSF



The Scottish Classic Racing Club will soon be sending entry forms for the parade and other details to John Rushworth. We hear that Bill Irwin from New Zealand may call in whilst making a visit to the TT and Europe.

John tells me that Knockhill is a very nice circuit for Gileras so the 'parade' should be good fun. The surroundings are wonderful and at the end of June there is every chance of fine weather, so it looks like being a really good opportunity for a camping get-together.

Let me know if you want to take part in the parade and we will send you the paperwork.

## Members List

- 226 Jim Foot Hants. NW
- 227 Les Wassall Cheshire RC
- 228 Tony Bidgood Devon NW
- 229 Chris Povah Cheshire
- 230 Bjorn Andersson Sweden
- 231 Guus Duijvertijn Switzerland SAT
- 232 Nick Donald Oxon. GIU
- 233 Graham Turner Oxon.50
- 234 Andrew Jones Cornwall NW
- 235 Gerry Raymond-Barker Surrey SAT
- 236 Jerome Foster Dumfriesshire 175RE
- 237 Andy Greenwood Surrey NW
- 238 David Evans Somerset NW

## SCOTTISH MOTORCYCLE SHOW 8/9 MARCH 1997

A disaster with the van I hired to transport bikes and display equipment to the show fortunately did not ruin a great weekend. I had planned to pick up one of Raymond Ainscoe's machines on the way to Scotland, but firstly the van was not ready until an hour after it should have been, and secondly it appeared to be the slowest van in the entire universe. Its maximum speed of 60 in top reduced to 50 foot to the floor in 4th up anything resembling a hill, so it was impossible to make up the lost time and reach Raymond's in the necessary time window (sorry Raymond). I eventually arrived at John's after 8 hours on the road. John very sensibly persuaded me to collect the Norturno from his parents' home that night (many thanks to them for feeding me), and to leave setting up the stand until early the next morning.

We arrived at the show to find James Murray ready with his RC, and we quickly deployed the bikes and arranged the PC displays and the various posters and photos, just in time for the opening of the show. The tribute to Bob McIntyre was excellent with many of the machines he raced on display as well as a replica Gilera Four. In the photo you can see some of the Isle of Man TT trophies that were on show. Our President, Bob's daughter Eleanor Quigley, visited us as you can see from a photo of her with John, James and me. John's Norturno and James' RC were very shiny and drew lots of attention. I reckon you could still sell plenty of brand new RCs at the right price

now. A couple of prospective members were attracted - one with a much modified Nordie who showed an interest in the 604's tuning parts.

Despite Nigel 'Stoppie' Windys not taking part in the European stunt riding championship it still attracted a good crowd and generally the show was very well attended helped by the good weather. The extent of the dealer, manufacturer and club stands was impressive - a real rival for the NEC.

John introduced me to all the little things I needed to know about the Norturno before he and James helped me load it and the 604 back on the 'van from hell' for the trip home (only 7 1/2 hours !). The Gilera Network owes a very big thankyou to James and his brother for coming from Aberdeenshire to support us, and to John for co-ordinating things generally.

It was a privilege to be associated with the Bob Mac tribute and I am really looking forward to the Knockhill meeting in June.

 Pete Fisher

## NordWest 02 - A Personal Design Impression

### STYLING:

*Intended to be recognisably evolved from the original 'hard/soft' NordWest yet all new and very 'clean'. Key lines are drawn from the long*

*developed, it would help widen markets. New oil cooler, fuel pump to higher flow twin carbs, uprated ancillaries. Fully-stressed crankcases part of ...*

### CHASSIS:

*Cost-effective stressed-steel twin-spar type uses engine as fully integrated link for tauter ride and freeing up of design package. Rear sub-frame assisted by...*



*seat profile, cross-over panel splits, swept bodywork surfaces, and blunt slit headlight/mini screen. Emphasis is further toward road capabilities, hence forward body stance and single sided swingarm, yet keeps SuperMoto links. Graphics are toned down, but blend of earthy metals and solid paints built upon. Most other details rationalised and updated.*

### ENGINE:

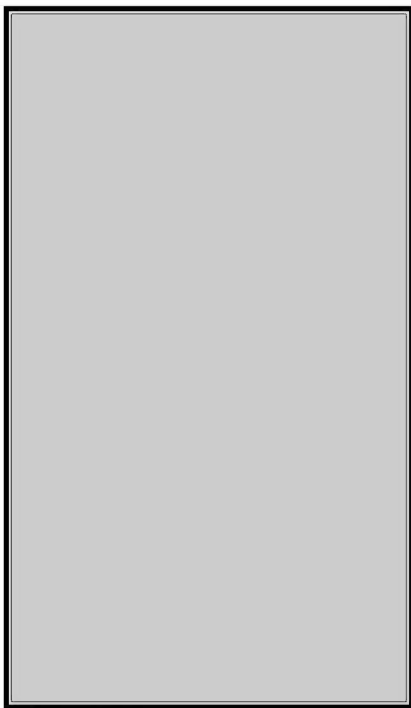
*644cc 4-valve single. Based on the previous 558cc unit and rumoured to be already*

### EXHAUST:

*Twin side pipes lead to semi-stressed 'pod' unit. Larger than original due to higher output yet tougher noise regulations, it stays narrow by fitting well under pillion seat and provides sub-frame link.*

### SUSPENSION

*Improved adjustable 41mm UD forks at front, single-sided aluminium swingarm to PowerDrive linkage at rear with piggyback shock. Enhanced handling plus adding useful marketing value.*

**BODYWORK:**

Boundary-layering improves flow to higher efficiency radiators and provides exhaust cooling while damping mechanical noise. Simpler fit/release method for all panels. Plastics improvements raise finish and durability.

**FUEL CELL:**

Plastic item moves to underseat C-of-G location raising capacity to 16 litres without sacrificing width or distinctive NordWest seat profile. Swaps location with...

**AIR BOX:**

Ram-Air type forward mounted with improved filter elements. Mass centralisation also shifts larger battery inward to centreline.

**DASHBOARD:**

Improved edgelit display now features larger tachometer, new oil temperature gauge, and timer.

**SECURITY:**

Improved ignition lock/immobiliser. Lock-friendly front mudguard. Locking filler cap/seat.

**STORAGE:**

Lock/slide seat gives access to 5 litre waterproof underseat storage area which can hold, for example, virtually all aftermarket locks. Integrated soft-rack frees pillion/luggage positioning.

**DETAILS:**

Rationalised l/h fuel tap and bar-mounted choke - more natural to potential buyers. Adjustable footpegs; Longer sidestand, plus optional centrestand; Twin UV projector headlights with halogen running light, plus twin taillights; Taper alloy bars; Improved pillion grab or centrestand lift location; Eccentric cam chain adjust; Easier routine maintenance via direct slide seat/tilt airbox access to toolkit, oil, coolant, spark plug, valve covers, air filter, battery/electrics and more.

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All computer renderings present my personal uncommissioned conceptual impression only, and as such are simply conjecture. Any possible resemblance or inference with regard to future intent or products on the part of Piaggio/Gilera or others is entirely coincidental.

[Ah - if only the powers that be at Pontadera would take notice of Niall's wonderful ideas. How about a launch to celebrate the 90th Anniversary? - Ed.]

## WHAT'S ON

**BMF Rally. May 17 -18.** This year it is going to even bigger and better than ever. We will be there so please come and visit the GeN marquee in the owners club area. I would like to hear from any one who can camp for the weekend and help in the marquee. Or just offer some help on one day. If any one from the Birmingham area could help by taking some things in a car on Friday night or Saturday morning and take them back on Sunday evening it would be a great help. Please call David 0171-639-3466.

**Isle of Man TT** - A special year as it is the 40th anniversary of the first 100mph lap. The lap of honour is going to have four Gilera fours and several "old" racing Saturnos.

**Italian Bike rally at Langemark, Belgium. June 13 - 14 - 15.** This could be the last time this excellent event happens so let's try and win the award for most club members attending. Its only 60 miles from Calais so get your tent and get yourself to Langemark which is just out side Ypres. I do not think you will be disappointed. Hot water, showers, food and drink on site but the camp site is in a village so there are bars and a restaurant ride outside the gate. If you want to make it part of a holiday you are not far from Bruges and Ghent, both are worth a visit. Give me a call if you want to go, I will be there.

**International Bike rally at Hovezi, Czech Republic. July 12 - 17.** I have told you about this event before. I would suggest that you make it a two week trip and expect to do a 2500 - 3000 mile round trip through France or Belgium and Germany. Czech Republic is a beautiful country and Prague is a city you should not miss. The people who run the rally are very friendly and they will have plenty of sightseeing organised, probably by coach locally so you can have a drink and not worry. If you want to go call me.

**Gilera / Morini Track day and Camping weekend. August 15 - 17.** And GeN AGM. Cadwell Park. - Details elsewhere in this GeN. No excuses, be there and help make a great weekend even greater. This year there will be an award for the furthest travelled bike at the AGM so make a

note of the Km's before you set off.

## STOP BODY PANEL CRACKS

Nordwest and RC600 body panels have a nasty habit of cracking. There are a few things you can do to reduce the risk. Gilera did become aware of the problem and they made a few changes. Northwest 600 after 228 \* 70862 and RC 600 (91) after 228 \* 40405 have the following modifications intended to stop the front panels cracking.

1. The cross bar in front of radiators is in two pieces and attached to the frame with bolts and rubber washers.
  2. The tank top screws through the crescent in front of the filler cap have spacer tubes to prevent the screws tightening on the panel.
  3. The three fixing screws on each side of the tank only have screws in the rear hole.
  4. Put strips of draught excluder along the tank edge where the panels fit.
  5. The screw through the centre of the panel must have a spacer tube to stop the screw crushing the rubber grommet tightly onto the panel.
- When you fit the panels make sure that none of the screws have to be forced in so that they stress the panel. If you elongate all the hole slightly you will get every screw in easily.

If you already have a crack. Go to a local printer and ask if you can have an old Litho plate. Cut a piece to fit in the back of the panel. Clean the back of the panel and the Litho plate with fine sand paper or wet and dry, then wash the area to be glued with a solvent like brake cleaner or Meths and use JB Weld (from Halfords) to glue the Litho into place.

## FACT SHEETS, EXTRA FACTS

In GeN 11 we published fact sheets for the Northwest and Saturno. Here are a few extra facts you may want to add.

### NORDWEST

Front wheel bearing size: 6203 / 2RS. qty 2  
Rear wheel bearing size: 6004 / 2RS. qty 2  
Sprocket carrier bearing: 63005 / 2RS. qty 1  
Front disc brake pads. Gilera part number change: 344837 pair.  
Rear disc brake pads. Gilera part number change:

344838 pair.

## RC600 PROJECT BIKE

*I had the opportunity to buy an RC600 at a good price because it had been crashed and needed some work. Well it's a nice bike but it is not really my style. I bought the bike with the intention of changing a few things. Once I had the bike I began measuring. A plan started to form. Gilera had produced several incarnations of the big single, but the one they had never made was the classic all rounder that most Italian factories produced; The Strada. The single that BMW should have made, the bike that the Pegaso is slowly becoming, the bike that will take you to work and across Europe or go scratching down country lanes, a Northwest that has taken a small step back from the edge. A bit more comfort, longer range but still good-looking and still good fun.*

*I do not have the cash to adopt the Back Street Heroes approach to modifying where you go to special builders and buy the best of everything to make a stunning no holds barred one off. My special will have to make do with carefully chosen parts that I can get cheap or second hand, but I am determined that it will end up looking as good as a Gilera should. It may take a while. The building fund has already taken a knock because in December I came off Belinda's 500 Suzuki. I cracked a couple of ribs and the bike needed a new silencer, mirror, indicator, top box and fairing side panels! Ah well I can always ride the RC the way it is for a while longer.*

*Anyway the plan is to lower the bike and then remove the body work and fit a new tank and seat. Lowering the front end is not too hard. By fitting 800mm road fork legs and rebuilding the wheel with a 17" rim I can lose seven inches. Lowering the rear looks a bit more tricky. Removing the body work is dependant on being able to fit a different tank and fitting a different tank is dependant on being able to replace the two side radiators with one central unit. So far I have only done a few small jobs, fitted a kick start, handlebar mounted choke control and of course a Scott oiler. I have got a pair of 41mm Showa fork legs and a Radiator. And I have a very good idea of which way to go.*

*I have done 4000km on the RC since the end of November and it's doing just over 51mpg. I fitted a pair of Avon Gripsters and they seem to work very well, £100 for the pair from Watling Tyres. While I had it in bits I treated all the nooks and crannies of the frame with Waxoil to stop any rust. It has not suffered badly during the winter snow and salt. Look out for Chapter two of "Project Strada" in the next edition of the GeN.*

## TECHNICAL ARTICLES AVAILABLE FROM THE GeN

*I now have quite a collection of technical articles and I have recently been updating some of them. Here is a list of what is available, and what I am working on. I have indicated the current issue number and this will appear on the sheets so in the future you will know if there is a later version. We will include this list occasional in the GeN. If you want any of these send DC an SAE.*

*NORDWEST & GFR Headlight modification to make light dip to the left - One A4 sheet. issue 1.*

*NORDWEST & RC600 Body panel mods to help prevent cracking - One A4 sheet. issue 1.*

*NORDWEST & RC600 Carburettor data and information. inc. drawings - One A4 sheet. issue 1.*

*NORDWEST & RC600 Handlebar choke conversion - SOON.*

*NORDWEST Fact File. As published in GeN 11. now updated - Four A4 sheets. issue 2.*

*NORDWEST Rear sprocket drawing, for RC600 Rear sprocket drawing, for getting a pattern sprocket made - One A4 sheet. SOON.*

*RC600 Fact File. As published in GeN 12 - Four A4 sheets. issue 2.*

*SATURNO Fact File. As published in GeN11. now updated - Four A4 sheets. issue 2.*

*SATURNO Rear sprocket drawing, for getting a pattern sprocket made - One A4 sheet. SOON.*

*CHANGING CAM BELT, CHECKING TAPPETS. now updated with drawings - 4x A4 sheets. issue 4*

*STARTER CLUTCH INFORMATION. 500 - 600 singles. One A4 sheet. issue 1.*

*If you can give us useful information or tips on doing a job on ANY Gilera please call DC.*

## HANDLEBAR CHOKE CONVERSION for NORTHWEST & RC600

If you have a Northwest or RC600 you will be all too aware of how difficult it is to operate the choke. Well there is a solution. It is not particularly cheap but it is probably worth the expense. I have made this conversion on my RC and believe me it makes it so much easier. I am not totally happy with the set up I have on the RC so I am still working on it.

The magic component is the choke assembly used on some Yamaha XT600's p/n: 1JK-1410A-03. The Yamaha uses the same carburettor so the choke fits straight in place of the button used on Gileras. Unfortunately the choke assembly retails at over £22. Then all that is needed is a cable the right length with the correct fittings and nipples and of course a lever for the handlebars. The Dakota and XRT had a lever but I do not think it is ideal for a couple of reasons. When I get it right I hope to be able to supply a complete kit ready to fit with instructions. Watch this space for more details.

## INSTRUMENT LIGHTS ON NORTHWEST & RC600

You may never have needed to change a bulb in the instrument pod but sooner or later you will and it is not that obvious what you need to do.

1. Remove the nose cone fairing
2. Disconnect the speedo cable
3. Remove the three 10mm nuts that retain the instrument pod.

Now you can lift the pod to get clear access to the lamp holders. You will see that most of the lamp holders are flush fitting rubber plugs. These plugs just pull out but if you pull the wires you will break them off. Get a small flat-bladed screwdriver and lever one side up a bit then spray some WD40 in to lubricate the rubber (don't use too much). Now prise the plug up carefully. The bulbs are the miniature capless type, you can get them in Halfords etc. Whatever you have read or been told you will probably find that all the bulbs are 1.2 watt, except number 5 which is the central one

from the row of five, this should be 2 watt. Don't worry about putting the lights in the wrong order, they are numbered and so is the body of the speedo. If you have any problems and are fault finding: The three pin flush socket is the rev counter.

The three copper spades are the temperature gauge. The lights with yellow/black and black wires are the ones that illuminate the clock faces.

✍ David Champion

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## For Sale

Hugo Wilson's Northwest might already be sold, but here are the details:

"The bike (a blue one) has 10,000 kms on the clock, a Stan Stevens top end job (flowed and blue printed) and an ally sprayed silencer. The chain, sprockets, cush drive rubbers and rear Hi-Sport are almost new. Bodywork is slightly scuffed on one side (as you'd expect). There's also a factory manual, a flywheel puller and a set of home made rearsets. It hasn't been used in the winter. Price will be around £3000 (preferably plus) depending on whether I've replaced the front tyre before selling it."

Phone: 01388 730267





## RC 600 (1991 spec) FACT SHEET

The RC 600 has appeared in three versions that are all based on similar engines but they have different frames and different body work. The 1989 & 1990 versions look similar and share a lot of parts. The 1991 version is very different and shares few parts with the previous versions. 1991 spec. bikes are the common ones in UK. They share many common parts (engine and body work) with the Nordwest.

Twin headlights are most common but single headlight bikes were also made.

<b>Common Colours</b>	Red with white graphics. Red seat. White with mauve graphics. Grey seat. Red and multi coloured with multi coloured graphics. Red seat
<b>Frame no.</b>	228 * 00001> stamped into left side of frame head stock
<b>Engine no.</b>	227 * 00001> plate on top of gearbox, behind cylinder
<b>Dimensions</b>	Length - 2230mm Width - 850mm Height - 1230mm Wheel base - 1510 + 20mm Seat Height - 890mm Pedal Height - 400mm Dry Weight - 141kg (claimed)
<b>Chassis</b>	Early bikes have a short seat and no rear carrier Later bikes have a longer seat and a rear carrier Steering head angle - 27deg. Trail - 106mm
<b>Front fork</b>	- Workshop manual page 13-17 to 13-19 Kayaba telescopic Stroke - 240mm Stanchion Dia. - 43mm Oil - 640cc in each leg. Oil grade - ***** Oil seal size - 43mm x 55mm part no. 346205
<b>Rear Suspension</b>	- Workshop manual page 14-22 Boge progressive gas assisted mono shock. Not rebuildable. Spring pre load adjustment. Rising rate linkage to light alloy swinging arm. Wheel movement - 260mm
<b>Wheel Front</b>	- Workshop manual page 12-13 to 12-14 Rim - 1.85x21" Bearing size - *****part no. 327187 qty2 Rim. Radial variation - 2.00mm (limit) Rim. Axial variation - 2.00mm (limit) Spindle bend - 0.20mm (limit) Tyre - 90/90 x 21 tubed Metzeler 90/90 x 21 54S Enduro 3. Pirelli 90/90 x 21 54H MT80 Tyre dealers usually have Avon Gripsters which are road biased and a good price. Pressure - 1.8 bar (26psi) used on road - 1.7 bar (25psi) used off road
<b>Wheel Rear</b>	- Workshop manual page 14-20 to 14-22 Rim - 2.50x17" Bearing size - *****part no. 348382 qty3

Rim. Radial variation	- 2.00mm (limit)
Rim. Axial variation	- 2.00mm (limit)
Spindle bend	- 0.20mm (limit)
Tyre	- 130/80 x 17" tubed
Metzeler 130/60 x 17 65S Enduro 3. Pirelli 130/80 x 17 65H MT80RS	
Tyre dealers usually have Avon Gripsters which are road biased and a good price.	
Pressure	- 2.0 bar (29psi) solo used on road
	- 2.2 bar (32psi) passenger used on road
	- 1.6 bar (23psi) solo used off road
	- 1.8 bar (26psi) passenger used off road
	- Workshop manual page 15-16 to 15-20
<b>Brake Front Disc</b>	
Non floating disc	- 260mm dia. part no.946029
Thickness (new)	- 5mm
Wear limit	- 4.5mm
Warp limit	- 0.10mm
Calliper	- Twin piston
Brake fluid	- DOT 4. change every 2 years
Piston dia.	- 28mm
Seal kit	- 341879
Pad	- part no. 346224
<b>Brake Rear Disc</b>	- Workshop manual page 15-16 to 15-20
Non floating disc	- part no. 324558
Diameter	- 220mm
Thickness	- 4.5mm
Wear limit	- 3.7mm
Calliper	- Single piston
Brake fluid	- DOT 4. change every 2 years
Piston diameter	- 35mm
Seal kit	- 341889
Pad	- part no.341888
Fuel	- =>Ron 96 (use 4 star)
Tank capacity	- 12ltr.
reserve	- 2ltr.
<b>Engine</b>	
Bore & Stroke	- 98x74mm
Capacity	- 557.9cc
Compression ratio	- 10.5:1
Compression test	- 10 to 12 bar (new)
	- 9 to 11 bar (over 5000km)
BHP	- 49.5 bhp at 7250 rpm. (claimed)
Torque	- 52 Nm at 6250 rpm. (claimed)
Some versions of the RC600 (91) were fitted with a kick start, most in UK are not.	
It is fairly easy to fit but the parts will cost over £200. Contact DC if you want to do it.	
Oil	- 10w40 semi synthetic
Oil capacity	- 2.2ltr.
Oil filter	- Technocar R-15 (original) part no. 321205
Champion C-116, Fram PH2874, TJ 5300, AC-Delco, X-13. Most Renault 5 filters fit.	
Change oil every 4000 km and filter at every other oil change.	
<b>Coolant</b>	
type	- Permanent, undiluted. Silkolene
	- Pro-cool etc.
capacity	- 1.3ltr. change every 2 years
<b>Air filter</b>	
	- Oiled foam. part no. 324505
	- w/s manual page 3-32
Oil	- Foam filter oil or SAE 90 gear oil

<b>Valves</b>		
Inlet diameter		- 36mm (x2)
Exhaust diameter		- 32mm (x2)
Clearance. Inlet		- 0.05mm (cold)
	Exhaust	- 0.10mm (cold)
Details on checking clearances are available from GeN, send SAE.		
<b>Cam belt</b>		- 321406/2 Isoran part no. 321406
Check tension every 4000km. Change belt every 12000km.		
To change belt you need tool part no. 19.1.20570 available from tool hire scheme		
Bob Wright can supply a cheap pattern tool. Phone:01934-413847Phone:01934-413847		
Full details on doing the job are available from GeN, send SAE.		
<b>Clutch</b>		- Wet, multi plate
Friction plates		- 8x part no. 324851
Thickness		- 2.9 to 3.0mm (new). wear limit 2.7mm
Steel plates		- 7x part no. 328546
Distortion		- 0.10mm maximum
Clutch operating arm oil seal		- size*****p/n: 319426
<b>Final drive</b>		
Gear box sprocket		- 14 tooth part no.328016
		(same as Northwest)
		- 15 tooth. part no.321586 can
		be used (Saturno)
Sprocket oil seal		- p/n: 328232 should be changed
		with sprocket
Gear lever spindle oil seal		- size*****p/n: 321275
Rear sprocket		- 43 tooth. steel. part no. 324896
		- 6 x (8mm) bolt fixing 75mm radius.
		- 130dia centre hole. Sprocket is flat.
Chain		- 520 x 110 links
Free play		- 60 to 70 mm vertical movement
		with bike on side stand.
Wear limit		- 20 links = 319.4mm (12.57in) max.
		With chain tight measure from centre of pin 1 to centre of pin 21
<b>Carburettor</b>		
Teikei E30PV2A with twin 30mm chokes. (same as Northwest)Northwest)		
One choke is conventional slide and the other is the constant velocity (CV) type.		
Both are fed from one float chamber.		
Full carb spec available from GeN, send SAE		
<b>ELECTRICAL SYSTEM</b>		
<b>Ignition</b>		-Two systems were used.
<b>Capacitive Discharge</b>		- early bikes up to 228 * 31175.
		w/s manual 17-6
Recognisable by		- 6 wires from ignition switch
		- Separate rev limiter box
		(pink & green wires)
		- 9 wires from ignition box
		- 3 groups of wires from alternator
		- 2 fuses
Charger coil		- part of stator. part no324471
resistance test		- 218 ohms + 10% (pink - green)
Pick up coil		- part no.324433
resistance tests		- 117 ohms + 10%
		(white/green - yellow/black)

		- 117 ohms + 10% (yellow/blue - yellow/black)
H.T. coil		- part no. 328647
	primary res.	- 0.2 - 0.3 ohm + 10% (white/lt.blue - black)
	secondary res.	- 9.2 K ohms + 10% (white/lt.blue - H.T.)
<b>Inductive Discharge</b>		- later bikes from 228 * 31176. w/s manual 17-9
	Recognisable by	- 4 wires from ignition switch - No separate rev limiter - 7 wires from ignition box - 2 groups of wires from alternator/tornator - 3 fuses
Because the inductive system gets it's power from the battery, if the battery is getting flat (below 6v) the control box will disable the ignition to protect the circuit (motor may turn but engine will not start / no spark).		
Pick up coil		- part no. 947125
	resistance test	- 150 ohms + 10% (yellow/black - yellow/dark blue)
H.T. Coil		- part no. 946789
	primary res.	- 4.0 Ohms + 10% (white/light blue - red/dark blue)
	secondary res.	- 13.8 K Ohms + 10% (red/dark.blue - H.T.)
Timing		- 7deg (static). 30deg at 4000rpm. not adjustable.
Spark plug		- Champion A4HC (original)
		- NGK DPR8EA9 or DPR9EV9 is a good alternative.
		- Nippon Denso X26 EPRU-9
Plug gap		- 0.6 to 0.7mm
Plug torque		- 12 to 15 Nm. put "Copper Slip" on threads
Plug cap resistance		- 1 K ohm.
Plug change every 8000km is recommended but it should be OK for 12000km.		
<b>Charging circuit</b>		- Three phase alternator. 180w w/s manual 16-1>
Regulated voltage		- 13.5 - 14 volts DC
Battery		- 12 volt 14 Ah. Yuasa YB14-LA2
Bulbs (all 12 volt)		- Work shop manual page 19-2>19-2>
	Head Light	- 60/65w halogen H4 type (single rectangular light)
		- 2x 35/35w halogen H4 type (twin round lights)
	Tail / stop	- 5/21w
	Indicator	- 10w bayonet
	Driving (side) light	- 2x 3w
	Instrument illumination	- 1.2w or 2w mini cap less
	Warning lights	- 1.2w mini cap less
Fuses		- blade type (common on cars)
	capacitive	- 2x15w
	inductive	- 1x7.5w. 1x10w. 1x20w blade type

#### **POSSIBLE FAULTS TO LOOK FOR**

##### **Fans touch radiators**

Check that fan shrouds have about 3mm (1/8") clearance all round from radiators to prevent vibration

**Tank filler thread can be broken off**

Over tightening the tank cap can cause the threaded part of the tank neck to be pulled off the neck. It is not easy to effect a good repair but some resins and super glue can be used and with care they work well. **GeN 6p12. GeN 9p6.**

**Body panels crack from fixing screw holes**

Remove screws and refit one at a time loosely. They must go in without the panel having to be stretched. If they will not go in elongate all the holes slightly and then all should fit. After 228-40405 a revised system of fixing the tank panels was used to stop cracking. If you have an earlier bike you may want to update.

- 1.Screws only in the rear fixings to the tank.
- 2.Spacers under the crescent at the front of the tank to stop it clamping the panel tight.
- 3.Cross bar is in two pieces with rubber washers under fixing bolts.
- 4.strips of draught excluder along top of tank in front of rear fixing.

**Cam belt breaks**

Very serious if it happens. If you are still on the original belt change it NOW - it is old and brittle. Change belt every 12000kms. You will need tool p/n:19.1.20570 to remove the rotor, this is available from tool hire scheme or Bob Wright can supply a cheap pattern puller. Full details of doing the job are available from GeN, send an sae. Check tension every 4000kms.

**Starting problem**

You may find a reluctance to start from cold. Keeping the battery well charged helps. I think the problem is the jet that supplies the choke getting blocked, it is not easy to clean it. Try this starting technique: Choke off. Throttle closed. Push starter button. While engine is turning, slowly pull out choke knob. Engine should start when you get to about half choke. **GeN 5p16. GeN 5p19. GeN 6p17. GeN 7p9.**

**Starter clutch failure**

Some last for ever but others fail in a few thousand kilometres. Similar units are used on some other makes and they give trouble as well. Piaggio tell us that quality has been improved now so let's hope it will cease to be a problem in time. Job can be done with engine in frame, remove left side engine cover. Starter clutch is p/n:328652. Replace gasket p/n: 321942 & gear shaft oil seal p/n: 321275.

Details of possible repair in GeN 8p16. Also see **GeN 6p5.**

**Poor gear change - Reluctance to change up, especially quickly**

This is caused by a poorly formed selector pawl. The problem should only be on older bikes as quality was improved after engine 227-34105. Job can be done with engine in frame, remove left side engine case.

Change Pawl p/n: 321536 and Pawl Spring p/n: 321176.

Replace gasket p/n: 321942 & gear change shaft oil seal p/n: 321275.321275.

**GeN 1p12. GeN 4p19. GeN 7p9.**

**Long rear engine bolts seize**

This may be a problem in the future if you need to remove the engine. Remove the bolts one at a time clean off any corrosion and coat them in "Copper Slip" or grease before refitting. Torque 30Nm.

**GeN 1p9**

**Rear sprocket cracks.**

There have been several cases of the rear sprocket cracking, for no apparent reason. Check carefully, particularly the rim near the end of the radial spokes. p/n.324896

**Rear suspension linkage**

The linkage is fitted with grease nipples. Don't forget to grease it occasionally, maybe once or twice year. If you use it off road I would suggest that you dismantle clean and grease every six months and grease every couple of months.

It would be possible to add a kick start fairly easily but the parts will cost over £200

A stainless silencer is available from Rodan £160. call Mike Riley 01332-722736 **GeN 10p5**

Handlebar choke control conversion costs £50+ using Yamaha parts & a one off cable. DC has info.

**[Issue 2. Dec. 96]**

## WARNING - WARNING - WARNING

What must we do to convince you that you **MUST** change that old cam belt. I have heard of another case of a Northwest with only 7000km on the clock breaking its original cam belt with disastrous effect (£200). If you even suspect that your bike still has its original cam belt, please do yourself a favour and change it NOW.

Another problem a member has had recently is the ball race behind the final drive sprocket breaking up. It is difficult to say why it happened but it is most likely due to the drive chain being too tight. This is a long involved thing to fix, engine out and strip, so it is worth trying to prevent.

As the chain wears it will probably develop a tight spot, so first rotate the rear wheel to find the tight spot. Then with the bike on the side stand and in gear so that the top chain run is tight measure the free play (up & down) movement in the centre of the bottom chain run.

**Saturno - 30mm**

**Northwest - 40mm**

**RC600 (91) - 70mm. this is not what the owners hand book says.**

**GFR - 40mm**

Adjust as necessary making sure that you do not get the wheel out of line, move both sides by the same amount. Now before you finish get someone to sit on the bike and make sure the chain still has some free play, if you have done it correctly there should be a bit of play and this will be taken up when the suspension is fully compressed as you go over bumps etc.

## A BRIEF EXPLANATION OF SOME OF THE LATE GILERA MODELS

Gilera were a very prolific factory and were always coming out with new or restyled models. 125's were probably the most common in the 1980's but there were 50's and of course the big four stroke singles.

I will start with the four stroke singles. A lot of people will try and tell you that the engine we all know from the Northwest is a Rotax or Husqvarna or something. It is all original Gilera and started as a 350 that appeared

in a trail bike called the Dakota. Then a 500 version joined it. Then the C.Itoh corp. from Japan approach Gilera and asked if they would be interested in producing a "cafe racer". C.Itoh supplied the money and believe it or not it was even a Japanese designer who was in charge of the design team at Gilera who turned out the Saturno. This was a 350 and 500. The engine varied from the Dakota in one important way, the Dakotas twin carbs had been replaced by a single 40mm Del Orto. Saturnos were never intended to be huge volume bikes and they were largely hand built. Early bikes were even supplied with numbered certificates signed and dated.

At around the same time a new trail bike appeared with 350 and 600 (558) engines. This was the none too attractive XRT. Then Gilera went desert racing with tuned 600 engines and the XRT turned into the more attractive RC600. The RC600 got a face lift and then the Northwest came along, using basically the same frame, body work & engine but with different forks, wheels & brakes. The Northwest was also a 350. At around the same time a very serious off road bike was made, this was the RC600 R. Different suspension, no electric start, no indicators, no tach, larger air box (more power), 18" rear wheel and much less body work. If you think the RC600 is tall with its 890mm seat height, imagine the RC600 R with a 920mm high seat, thats over 36 inches! (oh stop it). The Saturno prompted Gilera to go single cylinder road racing in Europe and they had a fair bit of success for a while. The bike they used was the Piuma, a purpose-made racer with a lightweight alloy beam frame and a 569cc engine. Piuma is an Italian word meaning feather light and it was, 110kg.

There was a lot going on at Gilera right up to the end. The last desert racers had all new 750cc engines and Bimota borrowed one of these to develop their GB-1 supermono but this never got further than a prototype when the factory closed. The final part of the big single story has to be the little known restyled Saturno that was due to be announced to the world when Piaggio pulled the plug. In the next GeN I will explain the 125 two stroke singles that culminated with the GFR.

## TYRES FOR SALE.

I have a brand new pair of Pirelli MP7 tyres - these are the tyres that were original fitment on the Saturno £100 for the pair including delivery.

Also I have a couple of front MP7s that are slightly used. Make me an offer.

call David 0171-639-3466.

## BADGES.

I still have embroidered badges, Gold logo on black or red at £2.50 inc post.

I have had to get some more enamel badges of the Nordwest in Blue and Saturno in red. The price has gone up a bit so if you want one they are all £3.50 inc post now.

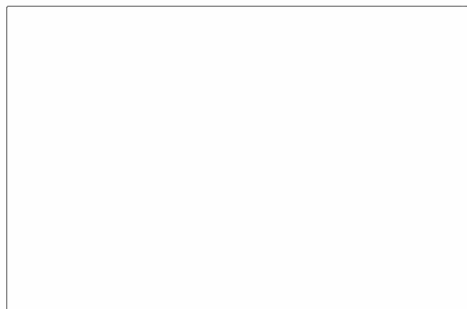
And of course the rectangular Gilera lapel badge at £0.50.

call David 0171-639-3466.

## GeN BINDERS.

I have found a company who produce very good binders for magazines. They do A5 size binders that would be ideal for keeping your copies of GeN neat and tidy. The binders are hard with sprung cords to hold the magazines, they will hold 12 copies and will have the spine embossed in gold. There is a choice of colours and I think antique red looks good. Price will be about £3.75 each. We will have to order a minimum of 50 so if you are interested please contact us ASAP. We are not going to spend all that money if no one wants them so please please call us. We are only looking for 20 people to order two each. This copy of GeN means the first one is full already.

 David Champion



## For Sale

Gary Rowe's **Spondon Gilera** racer is still for sale. Details as in GeN#11 - price £3500  
Phone: 01952 253549 (Telford)

Jeremy Ashby wants to sell his **Nordwest** 1995, L, 5300 Kms, Blue, Handlebar choke conversion, 15 tooth front sprocket, a new MOT. Offers around £2950.  
Phone: 01788 823359 (Northants)

Stephen Anderson's **Nordwest** is for sale. New starter clutch. battery, cam belt. New tyres. Two-tone blue '93 model but registered in N. Ireland in '96.  
£2750  
Phone 01238 510602 (Northern Ireland)

### A rare chance to acquire a GFR.

A non-member has a 93 K reg. GFR for sale around £2500  
Phone Anand on  
01332 733575

## Classics Corner

**Dick Brown** writes:

"Just to advise you that Saturno C now has a little friend in the form of a B300 who is complete but needs a bit of love and attention and some money spent with Mr. Wright and others.

For the record the frame and engine numbers are the same, 31-1825, and as yet it has no registration. I do not know if it is a recent import or has been registered in UK but it does have a MPH speedo fitted but not connected to anything. It was bought at a car boot sale for what I think was a reasonable price.

If you could point me in the way of any info available such as original pictures for restoration purposes I would be most grateful and if anybody in the club could date the machine to enable me to try and obtain an age related plate.

**Jerome Foster** is in need of a workshop manual for a 1960 175 Extra. Following the Gilera system the model type appears to be '171' and he has a spare '189' type engine. Can anyone help ?

# G-Mail

*Had a go at changing my own cambelt which I managed without too many problems following the example in issue 2. The only fiddly bit was getting the 3 marks on the alternator and inlet and exhaust cams lined up after putting the belt tensioner back. However, I also found it necessary to remove the bit of black plastic which covers the final drive chain cog and the other magnetic pick-up coil by the side of the alternator magnet (I assume this provides a signal for the tachometer) before I could remove the alternator magnet. [ This is the ignition sensor pick-up - an updated instruction sheet is available from David Champion Ed. ]*

*The exhaust questionnaire should be useful as I will need to replace the Nordwest exhaust in the not too distant future I expect. It may be useful to know if there is a typical mileage ( say 20,000 +/- 5000 Km ) at which silencers will need replacing?*

*It may be useful to know that I managed 213 Km before the reserve petrol ran out on a mixture of motorway and urban travel - so if you are on reserve and hit 210 Km - start panicking.*

## ☰ Phil Adams

*So to the members out there, fancy a Gilera meet? Yorkshire & N. Derbyshire Gils. seem to be on the up. So give me a call and I'll co-ordinate a meet and run ( Peak District and N. Yorkshire as suggestions).*

*I have one of the early black and pink Nordwests since new without serious problems. Starter clutch required renewal - now using semi-synthetic oil. Starting's OK if the battery is kept up, but if left longer why does draining the float bowl get me going ? I can't believe the petrol goes stale ! I have a little Ducati that starts first kick after months of standing. [ The theory is that a 'big' single needs lots of volatiles in the fuel for that first bang - it seems that these evaporate quite quickly from the standard carbs -Ed.]*

*The NGK man at the NEC says using DPR9EV-9 plugs will show a marked improvement - we shall see ! [ See Nordwest Frontier and letter from Les Wassall - Ed.]*

## ☰ Brian Pashley

*As a new owner of a Gilera and Network member, I hope that the information below may be of some use to a fellow enthusiast. Briefly I would like to mention a 'Spark Plug' which has recently been replaced on my RC - it's a Split Fire 416C. Initially the recommended 416B was installed - I found that following a spell of cold weather it proved worse rather than better, than the NGK plug; so a call to Split Fire (01562 822699) Technical Department - meant that they were on the ball and looking into the starting problem - the plug they suggested 416C has the same heat range when starting as the listed 416B has at peak. Cold mornings now - "No Problem !" the start is excellent and warm up much swifter than the NGK - is the fuel consumption up or down ? I've yet to put that to the test.*

*If anyone would like any further information with regard to the above - Emma at Split Fire is a very helpful lady - who happens to be a bike rider herself.*

*Finally since joining the Gilera Network I have found the Gen and help from other members invaluable especially with regard to the 'cambelt'. I hope to be at the Spring Gathering in May to meet more members of the Network.*

## ☰ Les Wassall

*I haven't used the bike yet this year. I did try to, one sunny day in January but the engine didn't want to start. Ever since I made the smug remark in GeN#10 that I don't experience any starting problems, I've had nothing but starting problems. This latest problem was found to be a faulty ignition coil. This fault finding exercise did at least make me check the wiring thoroughly and I found one or two chafed wires. With all the body panels already removed, I decided to continue and strip down the rear end of the bike to clean it. With the rear sub-frame and swing arm removed good access is gained to the rear of the engine. The exhaust silencer was removed, cleaned and painted. On re-assembly I fitted a new chain and sprockets. The original Regina chain had lasted 17,000 Kms. The new one is an RK 'O' ring chain and pattern sprockets supplied by Bob Wright. Prior to fitting the new coil, I removed the cooling fans and (eventually) adjusted the tappets.*

*I've owned the bike for a year now and being my first*



bike it's been great fun. I obviously do not exploit its full potential and I'm very tempted by the proposed Cadwell Track Day. As always, thanks for the Newsletter, it's a real life line.

 **Nick Bell**

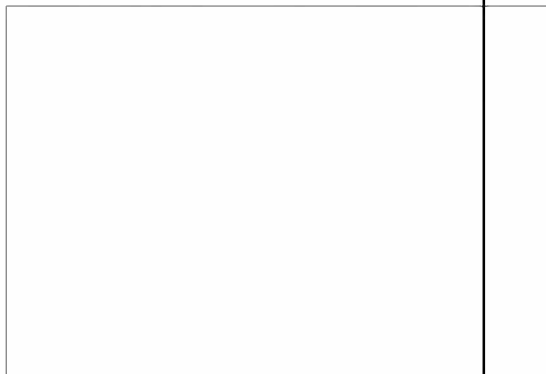
## QUILL SILENCER

Two members have tried the newly available Quill silencer.

**Brian Carter** writes:

"I have enclosed a photocopy of a page out of Performance Bike, this advert lead me to purchase an exhaust from Quill, it is not cheap, but when it arrived the quality and finishes justified the price. Fitting was not a great problem, all the fixing points lined up, the only thing I had to do was remove the header from the bike and sand off any exhaust paste and rust from the mating surfaces. Once the system goes together on the bench, fitting to the bike is very quick and easy. The system back on the bike nothing hit the frame or side panels. I recommend the Quill pipe to anybody, now saving for a stainless steel pipe for my RC.

**Bob Dysart** sent the following report to the G-Net e-mail list:



The Quill silencer I had made up is now on and the carburation setup to suit. Thanks to Dave at TTS who operated the dynojet dyno and set up the carburation.

My setup is now : Quill pipe, airbox intake stub

thingy removed (cleaner still in of course), needle in Cv carb dropped, and main jet in slide carb reamed to a larger size (Dave wouldn't say what size, but reamed because he didn't have any of the same type of jet).

Initial reactions:

**NOISE:** BLAMMALAMMA on tweaking the throttle. It's a bit noisier than I'd initially thought, but the noise is controllable via the throttle (aren't they all...). Noise at tickover is fruity blap-blap-blap, soft edged sound. Constant throttle is not bad, opening the taps gives a hard edged rasp. Over-run on closed throttle can be rather louder than you'd expect, but it's not so bad. Sudden whapping open of the taps in neutral makes other people in close vicinity of the bike jump and/or spill their coffee. Hee hee, how childish of me :). General opinion is that it sounds like pukka motocrosser.

Overall I'd say that if you have fussy neighbours, or have to pass lots of policebods every day, it's possibly a bit too noisy. If you have reasonable access to country lanes though, and live in the outer suburbs of your nearest town, like I do, it's ok.

**CONSTRUCTION:** the silencer is constructed of a perforated stainless tube inside an oval carbon fibre canister, with forged and welded alloy end caps pop riveted in place. The silencer enclosure so formed is filled with densely packed fibreglass wadding. The silencer is in fact one half of a Ducati 916 exhaust system. All other fittings supplied (strap mount and bolts etc), and the header pipe, are manufactured from stainless steel, and polished. All components, except the carbon fibre sleeve, are manufactured in-house.

**WEIGHT:** on my spring scales, slightly under 4 pounds imperial, including stainless intermediate pipe. On the same scales, the original silencer weighs a bit over 7 pounds imperial.

**POWER:** BHP and torque up from the start of the dyno graph to approx 6500 rpm, where the curves for the old and new pipe meet. The old pipe held on better right at the top end (6500-7300), but the torque and power curves for the new pipe are much smooother than for the old pipe. Apart from the

convergence at 6500 rpm, power is up between 3 and 7 bhp, and torque is up by more than 35% in places (i.e at 3200 rpm for example). The first dyno run showed that my NordWest is running quite well, even unserviced as it was, giving 45 point something BHP at the back wheel. I think that the top-end droop, which may bother some owners, should be possible to recover, or even better, compared to standard, with some tuning of the head, and perhaps some smooth bore carbs like John and Nigel Windys run on their Nordwests. Time and money permitting, I hope to look into this.

RIDING: Bike starts and idles smoothly. Response to throttle in neutral is fast and smooth, but difficult to say if it's any better than it was 'cos it's always been good for a single. On the road, the bike pulls much more strongly, and the increase in torque can be felt as a significant increase in acceleration. The engine revs cleanly and smoothly, and the overall effect is that the bike 'feels' lighter than it was. The bike is considerably less fussy about which gear it's in than it used to be, pulling much more strongly from low down, and in some respects this has made the bike nicer to ride. Top speed (such as I can try at present) appears to be the same as it was, but I'm not much of a red-line hooligan anyway. Drive out of corners though, oh yes! Wiggly roads have been transformed from a bit of a gear-lever tap dance into a smoother romp on the improved torque.

OTHER STUFF: I will (hopefully) send John a .WAV file (I have a DAT portable recorder and a reasonable sound card at home) of the exhaust note for the G\_Net homepage in the near future. That could be fun.

I should add that, strictly speaking, the pipe is ILLEGAL FOR ROAD USE in the UK, since it does not bear the BS-AU stamp, nor the equivalent Euro standard marking for road motorcycle exhaust systems. But then you've already guessed that, right? I will probably have to patch up the old standard pipe for the annual UK MOT vehicle inspection to make sure the bike passes (although I could not condone such an action, naturally ;'). If you need any more info on the pipe, please email me at work, on etlrdt@deep-thought.ericsson.se

The photographs are of the CF Quill on Brian's bike. Prices - CF : £245 + VAT, SS: £165 + VAT. Phone Quill on 01524 751791

## NordWest Frontier

Well my diagnosis of stretched cylinder studs was spot on. The most obviously affected stud turned out to be 9mm longer than the new ones supplied by Bob Wright, and the other three were nearly 4mm longer than standard. The FPM gasket caused me some problems as it seemed to be neither a 102mm or a 98mm item ! A couple of hours abrading away 2mm of copper with a round file with the new gasket bolted to the old one fortunately allowed me to end up with a perfect fit round the spigot on the FPM barrel.

The 'new' head was gas-flowed by TTS and I was pleased to find that with brand new studs and head nuts it all torqued up snugly to the 4.5 Nm recommended by Frigerio. The proof of the pudding is that after around 150 miles of running including some full throttle work there is no sign of any cooling system pressurisation.

A reluctance to start has been cured for the time being by fitting a softer (DPR8) plug - PSF

## How to do this preload job ?

No matter what shock or fork you have, they all require proper adjustment to work to their maximum potential. Formerly I did all my measurements for setting the right preload with the method claimed by White Power in their little booklet. Problem was, that if I check it three or four times, I get three or four different numbers without changed anything. The reason for this is friction. How to handle this is described in the following improved method, which is originally written by Paul Thede from Race Tech and also published in Sport Rider magazine August 95 (mixed up with some of my own suggestions).

The first step to setting up any bike is to set the spring sag and determine if you have the correct-rate springs. Spring sag is the amount the springs compress between fully topped out and fully loaded with the rider on board in riding position. It is also referred to as static ride height or static sag. It might be a good idea, to pull your damping adjusters (if available) in their softest position and to push the bike hard for 10 times or so, to release sticky damping valves.

### REAR END

Step 1: Extend the suspension completely by getting the wheel off the ground. It helps to have a few friends around. On bikes with sidestands the bike can usually be carefully rocked up on the stand to unload the suspension. Most race stands will not work because the suspension will still be loaded by resting on the swingarm rather than the wheel. Measure the distance from the axle vertically to some point on the chassis (a strip of tape will give you a help). Mark this reference point because you'll need to refer to it again. This measurement is L1. If the measurement is not exactly vertical the sag numbers will be inaccurate (too low).

Step 2: Take the bike off the stand and put the rider on board in riding position. Have a third person balance the bike from the front. If accuracy is important to you, you must take friction of the linkage into account. This is where this procedure is different to White Powers: we take two additional measurements. First, push down on the rear end about 25mm (1") and let it extend very slowly.

Where it stops, measure the distance between the axle and the mark on chassis again. If there were no drag in the linkage the bike would come up a little further. It's important that you do not bounce! This measurement is L2.

Step 3: Have your assistant lift up on the rear of the bike about 25mm and let it down very slowly. Where it stops, measure it. If there were no drag it would drop a little further. Remember, don't bounce! This measurement is L3.

Step 4: The spring sag is in the middle of these two measurements. In fact, if there were no drag in the linkage, L2 and L3 would be the same. To get the actual sag figure you find the midpoint by averaging the two numbers and subtracting them from the fully extended measurement L1:

static spring sag =  $L1 - [(L2 + L3) / 2]$ .

Step 5: Adjust the preload with whatever method applies to your bike. Spring collars are common, and some benefit from the use of special tools. In a pinch you can use a blunt chisel to unlock the collars and turn the main adjusting collar. A helping hand which turns the spring at the same time, into the same direction will make this easier. If you have too much sag you need more preload; if you have too little sag you need less preload.

Measuring front-end sag is very similar to the rear. However, it's much more critical to take seal drag into account on the front end because it is more pronounced.

### FRONT END

Step 1: Extend the fork completely and measure from the wiper (the dust seal atop the slider) to the bottom of the triple clamp (or lower fork casting on inverted forks). This measurement is L1.

Step 2: Take the bike off the sidestand, and put the rider on board in riding position. Get an assistant to balance the bike from the rear, then push down on the front end and let it extend very slowly. Where it stops, measure the distance between the wiper and the bottom of the triple clamp again. Do not bounce. This measurement is L2.

Step 3: Lift up on the front end and let it drop very slowly. Where it stops, measure again. Don't bounce. This measurement is L3.

Once again, L2 and L3 are different due to stiction

or drag in the seals and bushings, which is particularly high for telescopic front ends.

Step 4: Just as with the rear, halfway between L2 and L3 is where the sag would be with no drag or stiction. Therefore L2 and L3 must be averaged and subtracted from L1 to calculate true spring sag:

$$\text{static spring sag} = L1 - [L2 + L3] / 2.$$

Step 5: To adjust sag use the preload adjusters, if available, or vary the length of the preload spacers inside the fork.

This method of checking sag and taking stiction into account also allows you to check the drag of the linkage and seals. It follows that the greater the difference between the measurements (pushing down and pulling up), the worse the stiction. A good linkage (rear sag) has less than 3mm (0.12") difference, and a bad one has more than 10mm (0.39"). Good forks have less than 15mm difference, and there are forks with more than 50mm.

Using different sag front and rear will have huge effect on steering characteristics. More sag on the front or less sag on the rear will make the bike turn faster. Increasing sag will also decrease bottoming resistance, though spring rate has a bigger effect than sag. Racers often use less sag to keep the bike clearance, and since roadracers work greater than we see on the street, they require a stiffer setup.

White Power claimed sag of 20, up to 30% of the whole travel way. On my Saturno I can manage it to have 20% with empty fuel tank and 30% with tank filled up. Another recommendation is rear sag of 30% and front sag even more. Notice, this are only rules of thumb, you will have to find your personal setup by yourself, but this method of measurement will help you doing this.

It's important to stress that there is no magic number. If you like the feel of the bike with less or more sag than these guidelines, great. Your personal sag and front-to-rear sag bias will depend on chassis geometry, track or road conditions, tyre selection and rider weight and riding preference.

For those who have a second seat behind, or who often travel with luggage, you should take care,

that rear sag didn't go much over 35% of travel way. On rear suspensions with linkages, this will bring you up into the progressive part of the suspension. That makes your bike very harsh. Sometimes you couldn't increase preload so much to prevent this. Then you should go for a stiffer rear spring. BTW spring rate is a consequence of the geometrical dimensions of the spring and could never be changed by more or less preload. Also it's not a good idea to lower the bike by increasing rear sag, what is often done by short legged people. In this case it's better to go for shorter linkages. Of course, setting spring sag is only first step of dialing in your suspension, so you will also have to play around with spring rate and damping.

I hope you have realized that suspension tuning isn't rocket science, and if you follow step-by-step procedures you can make remarkable improvements in your bike's handling characteristics.

✍ Joachim Heller

## **STOP PRESS - GILERA RACE AGAIN**

David tells me that the scooter races to be sponsored by Piaggio UK will declare that the racing machines are "powered by Gilera". Watch out for them as supporting races for some major events !