

NORTHWEST FACT SHEET

The Northwest was derived from the RC 600 (1991spec). Many parts are common and basically by changing the wheels, forks, rear shock and brakes the bike was transformed from serious trail bike to serious street fighter with excellent performance on the tarmac.

Colours Graphite / Magenta (Black/Pink). Magenta seat
Yellow / Black. Yellow seat
Two tone blue. Dark blue seat. Silver engine
White / Magenta.

Frame no. 228 * 00001> stamped into left side of frame head stock
Engine no. 227 * 00001> plate on top of gearbox, behind cylinder

Dimensions	Length	- 2180mm
	Width	- 800mm
	Height	- 1180mm
	Wheel base-	1415mm
	Seat Height	- 870mm
	Pedal Height	- 320mm
	Dry Weight	- 141kg (claimed)

Chassis

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 - 92mm

Front fork - Workshop manual page 13-20

Paioli upside down

Stroke - 150mm

Stanchion Dia. - 41mm

Spring - In left leg. Part no. 346402

Free length - ****

- Damper unit in right leg.

Oil - 400cc in each leg - SAE 10 or 10W-40 engine oil.

Oil grade and quantity is only important in right leg.

Oil seal size - 41mm X 53mm X 8mm part no. 952633

Bikes before 228 * 71037 had forks that used a thicker seal

This seal is not available so use 8mm seal plus spacer part no. 952737

Seal & bush set - part no. 346384

Info on forks - GeN 5p19 & GeN 6p16

Seal fitting tool 19.1.20598 available from tool hire scheme.

Seal is common on 41mm upside down forks. GeN 9p7

Rear Suspension	- Workshop Manual page 14-22
<i>Boge progressive mono shock. Not rebuildable.</i>	
<i>Only spring pre load adjustment.</i>	
<i>Stroke</i>	- 150mm
Quadrant can supply a fully adjustable replacement. Telephone: 01295-710030	
Wheel Front	- Workshop Manual page 12-12
<i>Three spoke cast alloy.</i>	- 3.50x17"
<i>Bearing size</i>	- *****part no. 321891
<i>Rim. Radial variation limit</i>	- 2.0mm
<i>Rim. Axial variation limit</i>	- 2.0mm
<i>Spindle bend limit</i>	- 0.2mm
<i>Tyre</i>	- 120/70-17R tubeless(Original)
<i>Pirelli 120/70 ZR17 Dragon MTR01or Corsa MTR01c for best grip / shorter life.</i>	
<i>Pressure</i>	- 2.1 bar (30psi) solo
	- 2.2 bar (32psi) passenger
Wheel Rear	- Workshop Manual. page 14-20
<i>Three spoke cast alloy - 4.50x17"</i>	
<i>Bearing size</i>	- *****part no. 348382
<i>Rim. Radial variation limit</i>	- 2.0mm
<i>Rim. Axial variation limit</i>	- 2.0mm
<i>Spindle bend limit</i>	- 0.2mm
<i>Tyre</i>	- 160/60-17R tubeless(Original)
<i>Pirelli 160/60 ZR17 Dragon MTR02 or Corsa MTR02c for best grip / shorter life</i>	
<i>Pressure</i>	- 2.3 bar (33psi) solo
	- 2.4 bar (35psi) passenger
Brake Front Disc	- Workshop Manual page 15-18
<i>Twin semi floating discs.</i>	- part no. 946052
<i>Diameter</i>	- 270mm
<i>Thickness (new)</i>	- 5.0mm
<i>Wear limit</i>	- 4.0mm
<i>Planarity limit</i>	- 0.15mm
Calipers	- Twin Grimeca four piston calipers.
<i>Brake fluid</i>	- DOT 4. Should be changed every two years.
<i>Piston diameter.</i>	- 2x28mm & 2x25mm
<i>Piston wear limit</i>	- 0.05mm
<i>Pad</i>	- part no. 318833
<i>Ferodo</i>	- part no. FDB 529
<i>Seal kit</i>	- part no. 346269
Brake Rear Disc	- Workshop Manual page 15-18
<i>Single fixed disc</i>	- part no. 343413
<i>Diameter</i>	- 240mm
<i>Thickness (new)</i>	- 4.5mm
<i>Wear limit</i>	- 3.6mm
Caliper	- Twin piston
<i>Brake Fluid</i>	- DOT 4. Should be changed every two years.
<i>Piston diameter</i>	- 32mm
<i>Piston wear limit</i>	- 0.05mm
<i>Pad</i>	- part no. 323626
<i>Ferodo</i>	- part no. FDB 383 R
<i>Seal kit</i>	- part no. 346268
Fuel	- => Ron 96. (use 4 star)
<i>Tank capacity</i>	- 12 ltr.
<i>reserve</i>	- 2 ltr.

ENGINE

<i>Bore & Stroke</i>	- 98x74mm
<i>Capacity</i>	- 557.9cc
<i>Compression ration</i>	- 10.5:1
<i>Compression test</i>	- 10 to 12 bar (new) - 9 to 11 bar (over 5000km)
<i>BHP</i>	- 49.5 bhp at 7250 rpm. (claimed)
<i>Torque</i>	- 52 Nm at 6250 rpm. (claimed)
Oil	- 10w40 semi synthetic. GeN.10p2
<i>Oil capacity</i>	- 2.2ltr.
<i>Oil filter</i>	- Technocar R15 p/o. 321205 - Most Renault 4 filters will fit. GeN 1p10
Coolant	<i>type</i> - Permanent, undiluted
<i>capacity</i>	- 1.3ltr.
Air filter	- Oiled foam. part no. 324505
<i>oil</i>	- Foam filter oil or SAE 90 gear oil.
Valves	- Workshop manual page 7-5, also GeN 7p19
<i>Inlet diameter</i>	- 36mm (x2)
<i>Exhaust diameter</i>	- 32mm (x2)
<i>Clearance</i>	<i>Inlet</i> - 0.05mm (cold)
	<i>Exhaust</i> - 0.10mm (cold)
	<i>Details on checking clearances are available from GeN, send SAE.</i>
Cam belt	- 321406/2 Isoran part no. 321406 <i>To change belt you need tool part no. 19.1.20570 (rotor puller) size 38 x 1.5mm available from tool hire scheme. w/s manual. page.6-2 to 6-6.</i> <i>also GeN 2p2,#3p13, #6p4</i> Bob Wright can supply a cheap pattern tool. Phone: 01934-413847 <i>Full details on doing the job are available from GeN, send SAE.</i>
Clutch	- Wet, multi plate. Workshop manual page 9-1 to 9-6
<i>Friction plates</i>	- 8 x part no. 324851
<i>Thickness</i>	- 2.9 to 3.0mm (new)
<i>Steel plates</i>	- 7 x part no. 328546. - max distortion allowed: 0.10mm.
Final drive	- Info on final drive GeN 6p3
Gear box sprocket	- 14 tooth part no. 328016 (same as RC600) - 15 tooth. part no. 321586 can be used (Saturno)
<i>sprocket oil seal</i>	- p/n: 328232 should be changed <i>when sprocket is changed</i>
Rear sprocket	- 43 tooth. part no. 946060 - 5 x ***mm bolt fixing ***mm radius. - ***dia centre hole. ***mm offset
<i>Cush drive rubber</i>	- 5x part no. 939091
<i>Cush hub bearing</i>	- 1 x part no. 946578
Chain	- 520 x 108 links. Info on final drive GeN 6p3
<i>Free play</i>	- 35 - 40mm. (vertical movement)
<i>Wear limit - 20 links = 319.4mm (12.57in) max.</i>	
<i>With chain tight measure from centre of pin 1 to centre of pin 21</i>	
Carburettor	<i>Teikei E30PV2A twin choke unit. (same as RC600)</i> <i>One choke is conventional slide and the other is the constant velocity (CV) type.</i> <i>Both are fed from one float chamber.</i> <i>Full carb spec available from GeN, send SAE</i>

ELECTRICAL SYSTEM

Ignition	- Two systems are used
Capacitive Discharge	- early bikes up to 228 * 51763 Workshop manual page 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
If the engine turns it should start with the capacitive system.	
Charger coil	- part of stator part no.324471
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.)
Inductive Discharge	- later bikes from 228 * 51764 Workshop manual page 17-9>
Recognisable by	- 4 wires from ignition switch - No separate rev limiter - 7 wires from ignition box - 2 groups of wires from alternator - 3 fuses
Because the inductive system gets its 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 RA4HC - NGK DPR9EA9 or DPR9EV9 is a good alternative. - Nippon Denso X27 EPRU-9 or X27 EPRZU-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.
Charging circuit	- Three phase. AC. alternator. Workshop Manual page 16-1>
Battery	- 12 volt 14 Ah. Yuasa YB14-LA2
Regulated voltage	- 13.5 - 14 volts DC regulator/rectifier p/n: 328041
Bulbs (all 12 volt)	- Workshop manual. page19-2> (switches, horn, lights)
Head Light	- 60/65w halogen H4 type (single rectangular light)
Tail / stop Indicator	- 5/21w - 10w bayonet

	Driving (side) light	- 3w
	Instrument illumination	- 2w mini cap less
	Warning lights	- 1.2w mini cap less
Fuses		- blade type (common on cars)
	Capacitive ignition	- 2x 15w
	Inductive ignition	- 1x 20w, 1x 15w, 1x 7.5w

POSSIBLE PROBLEMS

Fans touch radiators

Check that fan shrouds have about 3mm (1/8") clearance all round from radiators to prevent vibration damage and ultimately an expensive leak. The fans are mounted on slotted holes, so are easy to adjust. GeN 1p9

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.

Fork seals leak

Fork seals on upside down forks do not last very well. These are quite easy to change and replacements are cheap. Original seals are about the cheapest p/n:952633 You will need tool p/n:19.1.20598 to fit them - this is available from tool hire scheme. You can use "Leak Proof" seals, these are guaranteed and can be pushed in with your fingers (no tool needed). These can be obtained from a dealer who sells "Bike Bitz" parts. GeN 5p19. GeN 6p16.

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 enlarge all the holes slightly and then all should fit. Nose cone screws first, then tank screws, then the big screw in the middle of the panel. After 228-70862 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 panel fixing screws.

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. If all else fails drain the float chamber by loosening the small cross-head screw, then refill with 'fresh' fuel. 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. 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 suspension linkage
 The linkage is fitted with grease nipples. Don't forget to grease it occasionally. 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
 It is possible to convert to twin headlights fairly easily. Nose cone & headlights & paint job.
 Handlebar choke control conversion costs £50+ using Yamaha parts & a one off cable
 [Issue 1.Nov.96]

SATURNO 500 FACT SHEET

The new Saturno was created using Japanese money after a request from the C.Itoh corporation. The engine was basically the 350cc & 500cc unit used in the Dakota trail bike.

Colours

Red with white graphics
 Black with gold graphics, special anniversary edition.
 White is listed but I have never seen one.
 Multi coloured for the Japanese market

Frame no. 212 * 00001 > stamped into left side of frame head stock.

Engine no. 213 * 00001 > plate on top of gear box, behind cylinder.

Dimensions

Length	- 2030mm
Width	- 730mm
Height	- 1170mm
Wheel base	- 1410mm
Seat Height	- 790mm
Pedal Height	- 360mm
Dry Weight	- 145kg (claimed)

Chassis

Steering head angle	- 24.5deg.
Trail	- 89.7mm
Front fork	- Workshop manual. page 13-2 to 13-5.

Marzocchi	
Stroke	- 120mm
Stanchion Dia.	- 40mm
Oil	- 310cc in each leg. Or better 150mm air gap. measure distance from oil to top of fork leg with the spring removed and the leg fully compressed. GeN 10p5

Fork seal	- 7.5sae fork oil. mix equal parts of 5 & 10 weight oil - size*****part no. 341239
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Spring free length - 420mm + 2.5mm part no. 318949 x 2
 Min. length - .415mm
 WP dual rate springs are available. p/n:9932.100.D. phone. 01280-705888
 Info on forks - GeN 5p20. 6p13. 10p5
Rear Suspension - Workshop manual. page no.14-6 to 14-9.
 Marzocchi mono shock
 Stroke - 130mm
 Only spring pre load adjustment.
 Not rebuildable

Wheel Front - Workshop manual. page 12-2 to 12-6.
 Marvic Aero light weight three spoke cast alloy - 3.00x17"
 Bearing size - *****part no. 328972 x 2
 Rim. Radial variation - 2.00mm (limit)
 Rim. Axial variation - 2.00mm (limit)
 Spindle bend - 0.20mm (limit)
 Workshop manual - page 12.1 - 12.5
 Tyre - 110/70-17 Pirelli MP7 (Original)
 110/70 ZR17 from Bridgestone, Metzler, Pirelli etc.
 Pressure - 2.1 bar (30psi) solo

Wheel Rear - Workshop manual. page 14-2
 Marvic Aero light weight three spoke cast alloy - 4.00x17"
 Bearing size - *****part no. 328972 x 2
 Rim. Radial variation - 2.00mm (limit)
 Rim. Axial variation - 2.00mm (limit)
 Spindle bend - 0.20mm(limit)
 Tyre - 140/70-17 Pirelli MP7 (Original)

Several tyre manufactures recommend 160/60 but 160 is too wide for the rim. I think they recommend it because they believe the Saturno has a 4.5" rim. None of them recommend fitting a 160 on a 4 inch rim so beware. 150/60 seems a good fitment. Bridgestone, Metzler, Pirelli etc. all produce 150/60 ZR17 rear tyres.
 Pressure - 2.3 bar (33psi)

Brake Front Disc - Workshop manual. page 15-2 to 15-6
 Brembo Gold Line fully floating
Disc - 300mm dia. part no.939102
 Thickness (new) - 5.00mm.
 Wear limit- 4.5mm minimum.

Caliper - Brembo four piston caliper
 Fluid - Dot 4. change every two years
 Piston dia.- 32mm. Wear limit: 31.94mm minimum.
 Piston seal kit - part no. 318897
 Pad Original - part no. 318895
 Ferodo - part no. FRP 408

Brake Rear Disc - Workshop manual. page 15-2 to 15-6
 Non floating disc - 240mm dia. part no. 343413
 Thickness (new) - 6.00mm.
 Wear limit- 5.5mm minimum.

Caliper - Grimeca single piston
 Piston dia.- 32mm. Wear limit: 31.94mm minimum.
 Piston seal kit - part no. 305840
 Pad Original - part no. 323626
 Ferodo - part no. FDB 207R

Fuel Tank	
capacity	- 20 ltr.
reserve	- 2 ltr.
Check that tank can not touch frame tubes especially near front.	
ENGINE	
Bore & Stroke	- 92x74mm
Capacity	- 491.9cc
Compression ration	- 9.8:1
Compression test	- 9 to 11 bar (new) - 8 to 10 bar (over 5000km)
BHP	- 44 bhp at 7000 rpm. (claimed)
Torque	- 47 Nm at 6000 rpm. (claimed)
Oil	- 10w40 semi synthetic
Oil capacity	- 2.2ltr.
Oil filter	- Technocar R15 part no. 321205
Change oil every 4000km and change filter every other oil change.	
Coolant	- permanent. un-diluted. Silkolene Pro-cool etc.
capacity	- 1.3ltr. Change coolant every two years.
Air filter	- Oiled sponge. part no. 939055. Workshop manual page 3-5
Oil	- Foam filter oil or SAE 90 gear oil.
Valves	
Inlet diameter	- 31mm (x2)
Exhaust diameter	- 28mm (x2)
Clearance	Inlet - 0.05mm (cold). w/s manual page 3-5. Exhaust - 0.10mm (cold)
Details on checking clearances are available from GeN, send SAE.	
Cam belt	- 321406/2 Isoran. part no. 321406. Workshop manual page 6-2>
To change belt you need tool part no.19.1.20501 available from tool hire scheme	
Bob Wright can supply a cheap pattern tool. Phone:01934-413847	
Full details on doing the job are available from GeN, send SAE.	
Clutch	- Wet, multi plate
Friction plates	- 8 x part no. 324851
Thickness	- 2.9 to 3.0mm (new). wear limit 2.7mm
Steel plates	- 7 x part no. 328546
Warp limit	- 0.10mm max.
Final drive	
Gear box sprocket	- 15 tooth. part no. 321586
Sprocket oil seal	- size: 35 x 47 x 7. part no.328232
Rear sprocket	- 5 x (8mm) bolt fixing *****mm radius. - *****dia centre hole. Sprocket is flat - 43 tooth. part no. 939211
Chain	- 520 x 104 links
Slack	- 35 - 40 mm of vertical movement.
Wear limit - 20 links = 319.4mm (12.57in) max.	
With chain tight measure from centre of pin 1 to centre of pin 21	
Carburettor	
Dell' Orto PHM 40 VS	
40mm conventional slide carb with accelerator pump	
Air screw	- 1.5 turns open
Float level	- 23 - 25mm
Full carb spec available from GeN, send SAE	

ELECTRICAL SYSTEM

	- Workshop manual, page 16-2 to 16-6.
	- Three phase AC alternator. 180w
	Regulated & rectified - 13.5 - 14 volts DC.
Battery	- 14 Ah. Yuasa YB14-LA2
Bulbs (all 12 volt)	- Workshop manual, page 19-2 to 19-8.
Head Light	- 40/45w tungsten. Bosch bayonet fitting
Tail / stop	- 5/21w
Indicator	- 10w bayonet
Driving (side) light	- 5w
Instrument illumination	- 2w mini cap less
Warning lights	- 1.2w mini cap less
Fuses	- 2 x 15w blade type (common on cars)
Ignition	- Workshop manual, page 17-2 to 17-5
Timing	- 7deg (static). 30deg at 4500rpm. not adjustable.
Charger coil	- part of stator. part no. 328239
Resistance test	- 150 ohm + 10% (pink to green)
H.T. Coil	- part no.321825
Primary res.	- 0.2 - 0.3 ohm + 10% (white-lt.blue to black)
Secondary res.	- 4.5 K ohms + 10% (white-lt.blue to H.T.)
Pick up coil	- part no.328240
Resistance - 110 ohm + 10% (white-green to white-red)	
Spark plug	- Champion RA4HC (original)
	- NGK DPR9EA9 or DPR9EV9 is a good alternative.
	- Nippon Denso X27 EPRU-9 or X27 EPRZU-9
Plug gap	- 0.6 to 0.7mm
Torque	- 12 to 15 Nm. put "Copper Slip" on threads
Plug cap	- 1 K ohm resistance

POSSIBLE FAULTS TO LOOK FOR

Fan touches radiator

Remove tank. Look down back of radiator. Check that fan shroud has about 3mm (1/8") clearance all round. The fan mountings are slotted but if there is not enough adjustment, trim the front of the shroud.

Rising rate bottom link bolt can seize

It is well worth dismantling the rear suspension linkage every year. Support rear of bike, then remove the rising rate link. Two of the bearings are self aligning ball joints, these just need some grease either side to keep the wet out. The lower long bearing needs to be cleaned and greased as well as possible. It is vulnerable and can easily get full of water and go rusty.

Long rear engine bolts can 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

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.

Tank touches frame tubes

Because the tank is rubber mounted it can move and touch the frame tubes where they are close along the bottom near the front. If this keeps happening a leak will develop. Placing a washer under the mountings should make a big difference.

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