

RGV 500 Conversion Project

**Steps and modifications for building a RGV 500
from mainly RG 500 and RGV 250 parts**



Georg Petersen

Germany

August 2004

DRAFT

Preface

Suzuki's RG 500 is still the ultimate bike for many people. A strong two-stroke engine, original 95 horsepower out of a 500 cc square four engine, what would you want more. The RG is now nearly twenty years old and while engine, especially when tuned, and weight are still highly competitive, chassis, suspension and tires are not up to date anymore. As alternatives are not available on the market, what else can a two-stroke enthusiast do other than implanting the RG engine into a more rigid frame, equipping it with suitable suspension elements, up to date tires and giving the engine a proper tuning.

While many RG conversions have been carried out with different frames and different ways of modifying them, this report describes a typical and reliable conversion based on a '89 Suzuki RGV 250 frame. This frame was selected due to two reasons, it is very rigid compared to the original RG500 frame and it allows the bike to be road licensed what is not possible for later years due to German emission control laws.

Acknowledgements

Many people finally got involved during the stages of gathering information, collecting parts and modifying them to build a very special bike. Many thanks for hints, infos and support especially to:

Günter Nothelfer, www.ghn-racing.de

Wolfram Aupperle, www.2takt-forum.de

Motorrad Fiedler, www.motorrad-fiedler.de

Rainer Klöcker, www.brunos-motocompany.de

And many others

Georg Petersen
georg.petersen@gmx.net

Table of Contents

List of Figures

List of Tables

Parts List Suzuki RGV 250 VJ21A <'89
Parts List Suzuki RGV 250 VJ22B >'90
Parts List Suzuki RG 500 HM31A
Parts List Kawasaki ZX6R XXXX '95-'97
Parts list Kawasaki ZX6R XXXX '03
Parts List Aprilia RS 250 XXXX >'98

Summary

This report describes the conversion of a Suzuki RGV 500 by using mainly RG 500 and RGV 250 as well as other parts and their necessary modifications. It describes in detail the steps to create a street bike for normal road use, being able to fulfill the requirements for a German street license as well as optional adaptations for track use.

After a brief description of the base bikes, the conversion is described in detail with all modifications to be carried out on the parts as well as a description of parts to be manufactured. In addition alternative part options with their advantages and disadvantages are described.

Some base data is given for the project bike and a brief analysis carried out regarding the achieved changes as well as wanted and unwanted results. Comparisons with the base bikes and a brief description of driving characteristics are undertaken here as well.

Finally conclusions and some last recommendations concerning the conversion are given as well as an outlook for further improvements, other conversion possibilities.

1. Introduction

1.1 Technical requirements

For a successful conversion project proper workshop equipment and working space should be available. As the conversion project normally shows up to be more time consuming than expected, sufficient and long term undisturbed working space is essential for realization of the project. Next to normal workshop equipment a lathe and mill as well as a TIG or MIG alloy welding machine are beneficial.

As the engine overhaul and tuning requires extra knowledge, this was carried out by Günter Nothelfer of GHN-Racing, Germany

1.2 Procurement of donor parts

Realization of the conversion project requires the collection of parts of many different motorcycles and suppliers. While the parts used for the described conversion are not all necessary and can be replaced and/or supplemented by others, the RG 500 parts as well as the RGV 250 parts are essential. For the described conversion both RGV VJ21A and VJ22B parts are used.

Generally for both the RG and RGV parts two ways of procurement are possible – buying a complete bike or buying only the required second hand parts with both options having their advantages and disadvantages:

Buying a complete bike:

- Accident caused frame problems less likely
- Engine and electric can be tested
- Test drive can be conducted
- All necessary parts available at once
- Leftover parts can be sold

Buying necessary parts only:

- Only needed parts are paid for
- Difficulty to get all necessary parts
- No testing possible
- Frame history uncertain as accident is more likely

Generally spoken a mixture of both approaches is recommendable – while it is strongly suggested to buy a complete RG 500, depending on what parts of the RGV will be used, these can be bought as parts or as a complete RGV. For the described project a complete RG 500 was dismantled while RGV parts were purchased separately. If unlike described here more RGV parts like front fork, rear rim and fairing are used, the procurement of complete bikes could be considered while keeping in mind that parts from different models (VJ21 / VJ22) might be needed.

2. Description of donor bikes and parts needed

Concerning the donor bikes, short descriptions are given, why they can be chosen and which parts are needed. While the Suzuki RG 500 donating engine, wiring loom and electrics is essential, frame, rims, fairing and other parts can be collected from bikes other than the ones described and fitted according the individual preferences. For all parts described the necessary bolts and nuts are needed as well and should be obtained with buying the parts.

2.1 Suzuki RG 500

The RG 500 is the core bike of the project. Its engine is what shall be preserved and around which more suitable parts shall form an ultimate bike. The following parts need to be taken from the RG 500:

Table 2.1: Required RG 500 parts

- Engine, complete
- Carburetors
- Carburetor cables
- Choke cables
- Clutch cable
- AEC actuator
- Wiring loom
- CDI unit
- SAEC unit
- Rectifier unit
- Ignition coils
- Ignition switch with key
- Fuel cock
- Rubber seals - carburetor to air ducts
- Air ducts
- Sprocket cover
- RPM counter
- Horn
- Engine bolts

2.2 Suzuki RGV 250

Suzuki's RGV 250 comes with a stable chassis and some accessories, which will, next to the RG engine, form an integral part of the conversion project. While concerning the main frame all RGV models are suitable, in the described project a '89 frame was chosen

to be supplemented with newer parts. In the tables it is distinguished which parts are needed from the VJ21A '89 and which ones of the VJ22B >'90 model:

Table 2.2: Required RGV 250 VJ21A parts

- Frame
- Swingarm axle
- Rear suspension upper bracket

Table 2.3 Required RGV 250 VJ22B parts

- Subframe rails – two sets
- Banana or braced swingarm and swivel
- Steering bearings
- Fuel tank
- Tank cap with key
- Tank mounting parts front bracket with rubber and rear rubber blocks
- Seat unit
- Seat cushion
- Rear mudguard
- Chain guard
- Rear wheel axle
- Chain spanners
- Radiator
- Lower radiator mounting brackets
- Footpegs
- Footpeg holders
- Shifting lever
- Rear brake lever
- Rear brake pump
- Rear brake light switch
- Switches right and left handlebars
- Throttle grip and rubbers
- Clutch lever and mounting bracket
- Temperature gauge
- Tacho scale (RPM counter)

2.3 Aprilia RS 250

The Aprilia RS 250 is equipped with a fully adjustable front fork, which from model '98 onwards is very reliable and not developing any leaks. This fork was chosen for the

project, as the RS 250 is also a bike of similar size and weight. The following parts are needed but can optionally be replaced by RGV 250 VJ22B or other parts:

Table 2.4 Required RS 250 '98 parts

- Forks
- Triple clamps upper and lower
- Front mudguard
- Front rim
- Front axle
- Front brake calipers
- Front brake cylinder, lever and fluid container
- Front brake light switch
- Front brake hoses
- Front brake discs
- Spacers
- Wheel bearings

2.4 Suzuki RF 600 / SV650 / GSX 750 >'98

As instead of the RS250 front fork also a original RGV250 VJ22B front fork can be installed, here a short note that in this case a rim from one of the above mentioned bikes with its 3.5" width does a good job replacing the original 3.0" rim so that 120mm front tires can be fitted. All these Rims fit into the RGV fork without modifications together with the original RGV spacers, odometer drive and brake discs.

The RGV upside down fork can be used with Suzuki GSX-R 1100 '93-'97 Tokiko 6-piston brake calipers which fit nicely with mountings and brake discs. Lucas SRQ MCB659 brake pads go well with these.

2.5 Kawasaki ZX6R '95-'97

As the RGV chassis is equipped with a stock 4.5"x17" rear rim which allows for a 150 mm wide rear tire at the maximum, options were looked into how to get a wider rim. As a solution the Kawasaki ZX6R '95-'97 rear rim was found, which with its size of 5.0"x17" allows for up to 160mm wide rear tires. For fitting it only minor modifications are necessary. The following parts are needed while alternatively the original RGV VJ22B parts or others can be used:

Table 2.5 Required ZX6R '97 parts

- Rear rim
- Cushion drive
- Brake disc
- Spacers
- Wheel bearings
- Rear brake caliper

2.6 Yamaha YZF 1000 R1

The Yamaha YZF 1000 R1 model '98/'99 with its good look was selected to donate some fairing and other parts:

Table 2.6 Required YZF R1 '98/'99 parts

- Handle bars and weights
- Upper front fairing
- Headlight
- Windscreen
- Front fairing mount

2.7 Yamaha FZR 600

As some fairing parts were available from a Yamaha FZR 600 3HE with them mating nicely with the R1 upper fairing, they were used to be fitted to the project bike. Anyhow, nearly every fairing can be fitted according to personal preferences.

Table 2.6 Required FZR 600 '89-'91 parts

- Side fairing left/right
- Coolant filler with lid

2.8 Custom made parts

As some parts were not fitting the converted bike, custom made solutions had to be found to suit the needs of the conversion.

Table 2.7 Custom made parts

- Clutch cover
- Air boxes and ducts
- Electrical mountings
- Rear brake caliper mounting
- Steering stopper
- 5mm washer for triple clamps
- Rear lift adapters
- Modifications to side fairings
- Engine mountings
- Engine mounting adapters and spacers

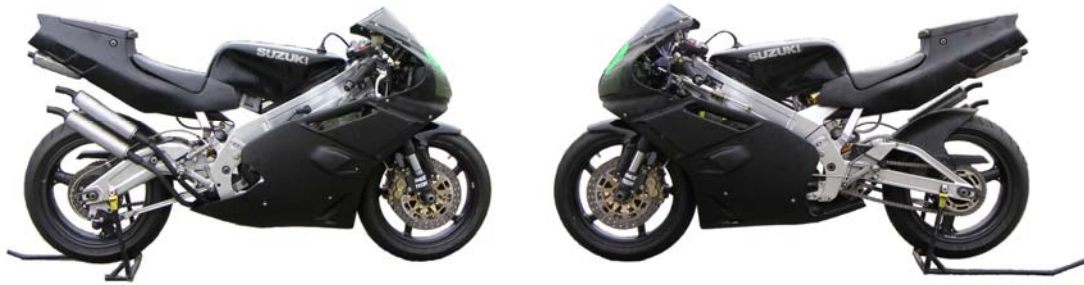
All these parts are described in detail in the conversion chapter.

2.9 Other

Other parts and pieces were obtained from different suppliers but could also be taken from other bikes.

Table 2.8: Other necessary parts

- Drive chain and sprockets 525 size with alloy rear sprocket, 16/40
- Tires Pirelli Supercorsa 120/70-17 SC1 and 160/60-17 SC2
- Sidestand Kawasaki ZX6R '03
- Speedometer Sigma Sport BC800
- Exhaust Jolly Moto GP
- Steel braided Stahl-Flex brake hoses
- Oehlings rear suspension (Zupin)
- Oehlings modified front fork (Zupin)
- Mini LED tail light
- Mini indicators
- Mini plastic bottle coolant container
- Mini rear brake fluid container
- F1 mirrors
- White Power steering damper and mounting kit
- Battery, maintenance free
- Petrol hose pipe quick connectors
- Petrol hose pipes 10mm
- Lucas SRQ 683 brake pads (for Aprilia calipers)
- Air filter foam
- Coolant hose pipe



3. Conversion

3.1 Steps of conversion

The steps needed for a complete conversion are basically scheduled by the pattern the bike is put together. After having all required parts purchased, dismantled and cleaned, modifications on the frame can be started. After cutting and some bending, placing brackets and new engine mounts, the frame can be welded being ready to take the engine. As a next step it is recommendable to set up a rolling chassis around which then all other parts can be fitted.

3.2 Modifications on the frame

3.2.1 Cutting and bending

To fit the larger RG 500 engine into the RGV frame, some cutting and bending is necessary.

Table 3.1: Necessary frame modifications

- Cutting out the original RGV engine mounts
- Cutting of clutch cover spacing on frame inner side
- Cutting of SAEC stopper housing space
- Cutting of throttle cable slots
- Cutting and removing of seat support lower rails
- Bending up the upper rear frame rails after slight cutting from the lower side
- Cutting of the lower frame rails for refitting

Describe each step in text

To describe the modifications, reference is taken to figures of the details to modify.

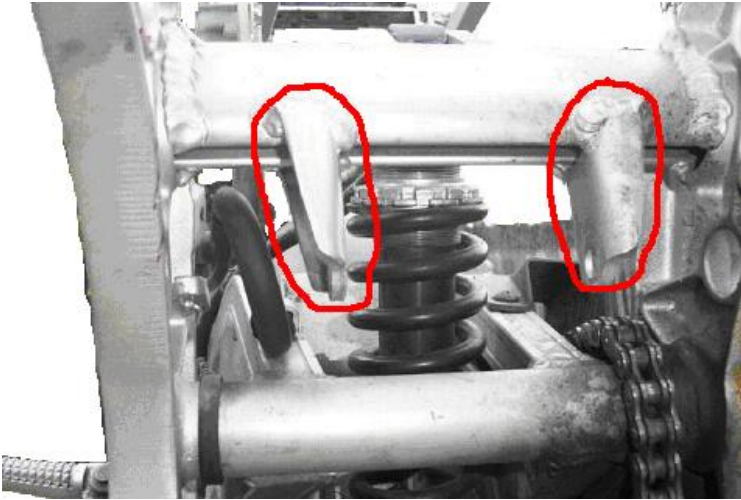


Figure 3.1: Rear engine mounts to be cut out



Figure 3.2: Frame to be cut out for clutch cover clearance

Pictures and descriptions

3.2.2 Welding

For getting engine mounts and bracings in place, some welding works need to be performed on the frame. As this is a sensitive issue, some experience with alloy welding is necessary to perform the operation in a proper way, also a suitable welding machine, either TIG or MIG, needs to be available.

For all welding performed in this conversion project, an AlSi5 or 4043 filler wire was used and can be recommended. Care needs to be taken that for any bracings and engine

mounts welded to the frame a strong alloy and no soft alloys or pure aluminum is used as they lack sufficient strength. Welding has to be performed in the following locations:

Table 3.2: Necessary frame welding

- Lower rear engine mount brackets
- Upper rear engine mount brackets
- Lower frame rails with engine mounts
- Bracing of frame cutouts
- Re-welding of subframe
- Re-Welding of lower seat support rails

To describe the modifications, reference is taken to pictures of the details to weld.

Pictures and descriptions

For welding of all parts it is recommendable to have the engine jacked in place and engine bolts fixed with all necessary spacers as then the mountings will be welded in the exactly right positions. After spotwelding, the engine can be removed and the mounts welded in properly. After finishing the welding works, the engine position can be checked for correctness by mounting it again.

3.3 Modifications on the engine

Next to a general engine tuning for which some general information is given in chapter 5.3 here the minor changes are described as necessary to fit the RG engine into the RGV frame.

3.3.1 Jolly Moto GP exhaust system

For the sake of increased performance, reduced weight and easier fitting a Jolly Moto GP exhaust system was fitted to the bike. Out of these three benefits for the conversion mainly the different shape of the rear pipes compared to the original pipes comes into play with them to be fitted to the modified frame without further modifications.

The mounting bracket of the lower (front) right pipe needs to be modified as for its fitting one of the footpeg bolts is used and the bracket needs to be shifted accordingly.

3.3.2 Clutch cover

To avoid massive frame cutouts leading to a loss of frame stability, the clutch cover, which in its original shape is interfering with the frame, needs to be modified.



Figure 3.1: Modified clutch cover

A triangular piece above the kick starter outlet needs to be cut out using a hack saw or milling machine. By removing the bulky outstanding part of the cover while leaving the seal seat in place as a thin metal band, a piece of alloy angle profile can be shaped to fill the gap being welded in place as shown in **figure 3.1** using AlSi5 filler wire.

3.4 Setup of the rolling chassis

For the setup of the rolling chassis the engine is taken out of the frame again for easier handling of the parts. Rims should be equipped with tires to avoid damages and the frame properly secured as it easily turns over while working on it.

3.4.1 Fitting the front fork

The RS front fork nicely fits into the RV frame with only minor modifications. The steering stem on the lower triple clamp is 5mm longer and the lower bearing seat **XXX** mm thinner than the original RGV part. Modifications needed here are a spacer ring to be glued into the lower steering bearing and a 5mm alloy washer to be fitted below the upper triple clamp. No fitting lower bearing is on the market.

3.4.2 Steering stopper

As the RS lower triple clamp is formed differently to that of the RGV, the stopper notches provided on the triple clamps do not work stopping the front fork from hitting the frame. A modified steering stopper needs to be milled and screwed onto the triple clamp. Some triple clamp versions who have cast on stoppers need to be modified by cutting off these original stoppers to allow this. It is also recommended to cut off the notches at the front of the lower triple clamp to avoid them touching the headlight.

3.4.3 Fitting the banana or braced swingarm

The banana or braced swingarm fits into the RGV frame without modifications. Rear suspension element and swivels have to be selected from the respective banana or braced swingarm model to fit properly, the upper suspension mounting bracket can be turned around to give some extra ride height. For fitting the swingarm, the '89 swingarm axle has to be used as the newer ones are too long.

For fitting the ZX6R rear rim some further modifications are necessary as described in section 3.4.4.

3.4.4 Modifications on the ZX6R '97 rear rim

For fitting the ZX6R rear rim some minor modifications on spacers and cushion drive need to be carried out to fit the rim into the smaller swingarm and ensure proper wheel and chain clearance and alignment. Also the Swingarm needs to be modified with cutting away the stopper nose of the brake caliper adapter on the inner side of the swingarm as it interferes with the ZX6R brake disc. On the rim the right hand side distance adapter needs to be turned down by 5mm, the cushion drive needs to be turned down by 5mm and a new brake caliper mounting adapter of 10mm thickness has to be manufactured.

3.4.5 Rear brake caliper adapter

As described in section 3.4.4 the rear brake caliper adapter needs to be manufactured from scratch. As different options are suitable, the described one requires cutting of a base alloy plate which is then bent in shape and reinforced with some additional alloy plates and bracings welded in place.



Figure X.X: Rear brake caliper mounting

3.4.6 Rear lift adapters

Rear lift adapters were manufactured on a leith from a 20mm alloy bar and fitted to the provided mountings on the banana swingarm.

3.4.7 Side stand

To replace the heavy cast iron sidestand, the lighter '03 model ZX6R Sidestand was used. The kill switch was replaced with a modified mechanical self-retraction system

3.4.8 Modifying the footpeg adapters

The footpeg adapters taken from the VJ22B need to be modified to fit with the VJ21A frame. The adapter needs to be cut and rewelded in a way to fit the different spacing required for the mounting bolts

3.5 Mounting the engine

3.5.1 Engine mounts

Engine mounts are to be welded in place at the lower and upper rear frame crossbars as well as on the lower subframe rails as described in the corresponding chapter.

Picture

3.5.2 Engine mounting spacers

For the rear upper and lower engine mounts, as the engine needs to be slid into place in a left to right movement, spacers need to be designed. This as adapter plates on the upper mounts and as thick washers for better fitting on the lower engine mounts.

Picture

3.5.3 Lower frame rails

The lower subframe rails are built by cutting and welding of two sets of original frame rails to account for the larger engine.

Picture

3.6 Electrics

3.6.1 Wiring loom and electrical units

To avoid problems with the electric system, mainly the original RG wiring is used. The RG wiring loom, ignition switch and electric modules are used without changes, while being mated with handlebar switches and coolant gauge from the RGV. Some slight changes have to be made for these wiring connections with the only consequence that the kill switch (donated from the RGV250) has to be on “STOP” to run the engine and switches off when put on “RUN”.

Changes in wiring connections RG to RGV:

3.6.2 Electrical mountings

Alternative mounting solutions had to be found for the following parts which was easily feasible leaving them in their approximate old positions connected to the original wiring loom:

Table 3.3: Electrical unit mountings

- Battery
- Radiator
- Ignition coils
- AEC actuator
- CDI and SAEC

Relocating these would require taking apart and rebuilding the original RG500 main wiring loom.

Pictures

3.7 Fairing

Nearly all fairings can be fitted to a project bike with more or less adaptations necessary. Concerning the R1 / FZR fairing combination the two sets fitted well with each other using the original R1 Headlight with the original R1 front fairing holder for which only the bolt holes had to be lengthened for 5mm to allow for a downward tilt of the front mask fitting the FZR fairing panels and having the light beam on the right level. The FZR side panels had to be modified by closing some unnecessary openings and cutting some material what was disturbing in the kick starter and side stand areas. New holder brackets had to be formed from alloy profiles.

Pictures

3.8 Air Boxes

Concerning the air boxes it was first planned to give the air ducts their old routing and placing the air box underneath the tank. While this solution is definitely feasible, other options were looked into as well with the background of how to get more and cooler air.

A final solution was found placing two independent custom-made carbon fiber air boxes directly on the carburetors, using part of the cutout old air ducts as adaptors. These air boxes have the disadvantage of sitting directly behind the radiator but suck their air via air ducts being routed over the radiator directly from the front end of the bike. With this solution larger filter element areas as well as larger air duct diameters could be achieved with the advantage of getting cool air from the bike front. While placing the air boxes behind the radiator, some space was left in between to guarantee a good airflow for proper cooling performance and prevention of heating up of the air boxes.

For the option of placing the air box underneath the tank, that space, as it is relatively small, would need to be reserved for the air box only. While in the converted bike this place is quite congested with ignition coils, cables, AEC actuator and coolant refill cap, other mounting solutions could be found for these parts and the space used for a custom made air box connected to the original RG air ducts. The uncertainty here would be the aerodynamics underneath the tank with a decision to be made on where to place the intake.



4. Analysis

Concerning the performance of the converted bike, some factors have to be taken into account which when mismatching lead to a failure of the project as a good looking bike might then have under proportional driving characteristics. For comparison the achieved values are compared to those of original RG and RGV values.

4.1 Weight distribution and reduction

Weight is one of the factors having a large influence on the performance of a track bike. Here not only weight reduction but also weight distribution plays a large role in the achievable driving characteristic.

Table 4.1: Weight analysis (fully fuelled)

Bike	RGV500	RGV250	RG500
Total weight kg	156	169	183
Front weight kg		86	
Rear weight kg		83	

4.2 Track alignment

Some careful track alignment was necessary when adapting the rear ZX6R wheel to fit into the RGV swingarm.

What needs to be achieved is that both, front and rear tires are running along the same centerline not being offset from each other to guarantee neutral handling.

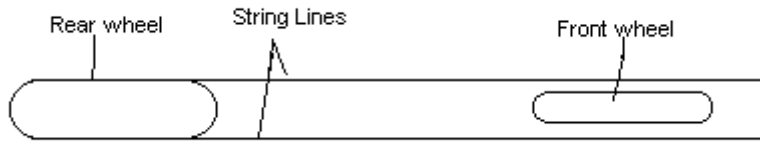


Figure 4.1: Correct wheel alignment

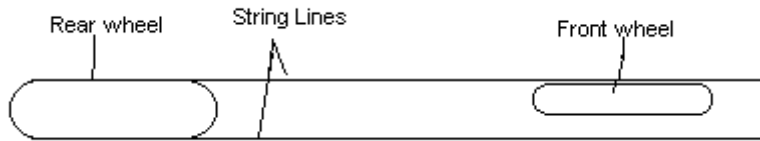


Figure 4.2: Offset wheel alignment

4.3 Sprocket alignment

To avoid excessive wear on the drivechain and the chance of damages the sprockets of engine and rear wheel have to be aligned properly so that they are not offset from each other. Here the same principles as for the wheel alignment apply.

Picture

4.4 Engine tilt

A slight forward engine tilt is necessary to get the engine in place far enough in the rear of the frame. Here it is important to know that the carburetor float bowls are only working properly up to a certain degree of tilt. They need to be built in as horizontally as possible.

Picture

4.5 Air box

Compared to the old filter element and air intake much better values could be achieved with the new airboxes. While the intake cross section area of the air ducts corresponds with tha of the original intake, the filter area could be increased. Also as now the air is sucked from the front of the bike cooler air reaches the engine.

Picture

4.6 Engine performance

After tuning the engine and equipping it with the Jolly Moto exhaust and the new air boxes the carburetor settings had to be changed for optimum performance. Starting with 200# main jets and needle clips in middle position, after some dyno runs, 118 horsepower could be achieved at the rear wheel which corresponds with the promise made by Günter Nothelfer of GHN-Racing.

Table 4.3: Engine performance horsepower

Bike	RGV500	RGV250	RG500
Original rated		56	95
Measured rear wheel	118	49	82



5. Conclusion and Recommendations

5.1 The sense of such a project

Does it make sense to build up a project bike as other lightweight and more powerful bikes are on the market? With even better frames and suspension elements? And all that for a lower price and less work?

It depends. The outcome of such a project is a unique bike, building it up is part of the game and still no bike as lightweight as the RGV500 with a comparable engine is on the market.

5.2 The costs of such a project

Not accounting for working time, workshop space, tools, machines and painting, a rough cost estimate may be as shown in table 5.1. It is obvious that the prices largely depend on the availability and price level on the second hand market and that everything is negotiable.

Table 5.1 Cost estimate of conversion project (2004 prices)

Item	Price in Euro
RG500 engine in used, unknown condition	1500
RG500 carburetors, used	600
RG500 electrics, used	600
RG500 accessories, used	300
RGV250 frame, used	300
RGV250 swingarm, used	50
RGV250 accessories, used	500
RS250 front fork and wheel, used	1000
ZX6R rear wheel, used	200
R1 front, used	600
FZR fairing, used	100
Custom made parts	200
Chain and sprockets, new	250
Tires, Supercorsa	300
Jolly Moto exhaust, new	1000
Stahlflex, new	150
Oehlins rear shock, new	700
Oehlins front fork conversion	700
Lighting, new	100
Mirrors,new	50
Battery, new	50
Brakepads	50
Other, new	500
Total	9800

5.3 Engine tuning

An engine tuning definitely should be considered when setting up a project bike with all the effort spent. Alternatively at least an engine overhaul should be performed including an update of gearbox sprockets to guarantee a fully functional bike. Engine overhauls and tunings can be performed by the following persons:

Table 5.2: Tuners

Guenter Nothelfer, Germany
Motorrad Joos, Germany
Motorrad Vater, Germany
Stan Stephens, Great Britain
Rick Lance, USA
Motorrad Fiedler, Germany

Costs can be estimated with 500 Euro for an overhaul or 2500 Euro for a tuning, not including the costs for parts which need to be exchanged or replaced. An estimate for an average engine can be set with 1500 Euro for these necessary parts.

In addition carbon fiber rotary disc valves and GHN gears can be recommended for extended engine life

For the current project GHN was chosen to carry out the engine tuning. Results are very satisfying and reliable.

5.4 Problems

As with every conversion, some problems occur here and there for which good solutions have to be found.

Describe

5.5 Other types of conversions

- excessive frame cutouts
- mounting kits using cylinder head studs
- extreme low mountings

5.6 TÜV

TÜV was made possible due to the following reasons

- Positive emission control regulations for the '89 VJ21A Frame
- Proof that the RGV frame could handle powers in the range of 100 horsepower
- Statement of origin of donor parts from stronger / more modern bikes

The conversion was checked in a test drive and a technical inspection. No change to the engine/intake/exhaust configuration have been tested but were kept original for the test.

The necessary documentation is shown in the following figures.

REGIERUNGSPRÄSIDIUM DARMSTADT
IV 1/36 - 66 I 06/03

6100 Darmstadt, den 10. März 1989
Luisenplatz 2 - Postfach 11 12 53
Tel.: (06151) 12 56 72

Ausnahmegenehmigung

Hiermit erteile ich aufgrund des § 70 Abs. 1 der Straßenverkehrszulassungsordnung (StVZO) i.d.F. vom 28.09.1988 (BGBl. I S. 1793) und den ergangenen Änderungsverordnungen in Verbindung mit der Anordnung über Zuständigkeiten auf dem Gebiet des Straßenverkehrs vom 16.10.1964 (GVBl. S. 168) die jederzeit widerrufliche Genehmigung,

das K r ä f t r a d

amtl. Kennzeichen: WT-H 28

Fabrikat: SUZUKI

Fahrzeug-Ident.-Nr.: VJ21 A- 117134



im Bereich der Bundesrepublik Deutschland einschl. des Landes Berlin auf öffentlichen Straßen in Betrieb zu setzen, obwohl folgende Abweichung von den Vorschriften der Verordnung an dem Fahrzeug besteht:

§ 47 - Das Fahrzeug gilt als vor dem 1. Januar 1989 erstmals in den Verkehr gekommen -

./.

- 2 -

Diese Genehmigung ist auf der Fahrt mitzuführen oder durch die Zulassungsstelle im Fahrzeugschein einzutragen.

Amtl. Kennzeichen und Fahrzeughalter sind von der Zulassungsstelle noch nachzutragen.

Gebührenfestsetzung :

Aufgrund der Gebühren Nr. 259 der Gebührenordnung für Maßnahmen im Straßenverkehr vom 26.06.1970 (BGBl. I S. 865) und den ergangenen Änderungsverordnungen ist für die Erteilung dieser Genehmigung eine Gebühr in Höhe von

DM 6,25 in Buchstaben: "Sechs 25/100 Deutsche Mark"

zu erheben.

Der Betrag ist bezahlt.

Im Auftrag
gez. Dr. Hecker

Beglaubigt
Taupitz
Angestellte



Figure X.X: Emission control statement page 2

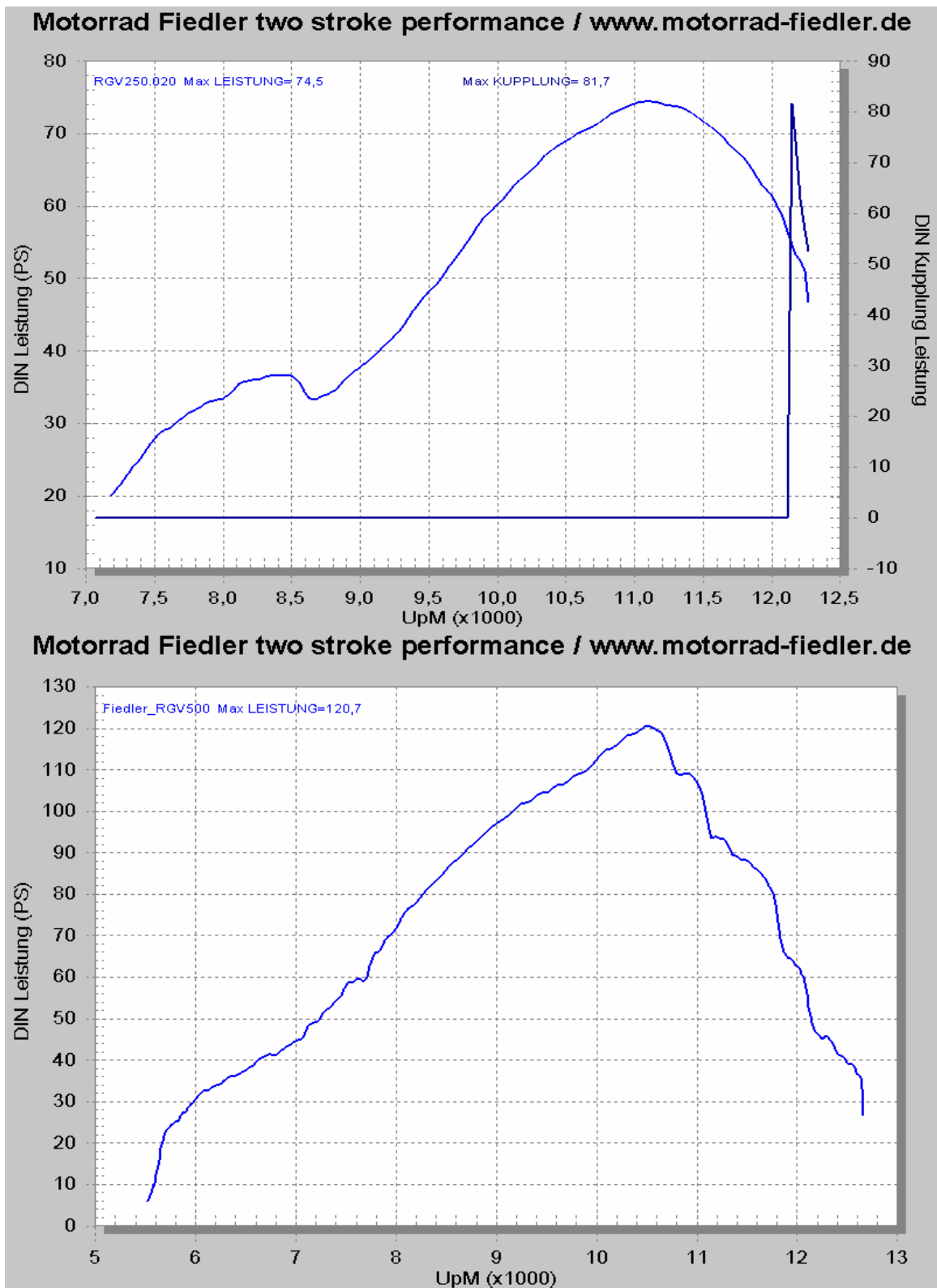


Figure X.X: Diagrams showing the performance of a tuned RGV250 close to the output of a standard RG500 (82 vs 95 horsepower) and the performance of a tuned RG500 engine in a RGV250 frame by Motorrad Fiedler

6. Outlook

6.1 Further improvements planned on the converted bike

- Improved steering stopper
- SPA Technique tachometer/speedometer (takes signal from one of the yellow cables coming from the Generator)
- Small rear Brembo brake caliper
- Improved rear brake caliper support
- Carbon fiber fairing
- Carbon fiber tank
- Larger radiator
- White Power front fork
- Radial front brake pump
- 520 chain and sprockets
- Magnesium rims
- Titanium axles front and rear wheel, swingarm
- Titanium replacement bolts
- Alloy replacement bolts for fairing etc.
- Bracing bar between frame profiles
- Tank foam
- Rebuild wiring loom with electrical units in other locations
- Use different upper rear engine mounting

6.2 Other conversion options

- Air box placement underneath fuel tank
- Replacing SAEC valve stopper housing to front cylinder to avoid frame cutouts
- GSX-R Tachometer/Speedometer conversion

7. References

www.ghn-racing.de
www.RGV-500.com
www.suzuki-rg500.com
www.bdkraceeng.co.uk/RGV500%20Conversions.html
www.2takt-forum.de

Add and describe