



More strength to the 'stroker!

SUZUKI PE 175



"Stronger than the road ahead"
Suzuki claims of its new Pure
Enduro machinery. Then it built a
lightweight low-flier IT175 pilots will have
difficulty picking up on radar!

UNtil late last year if the serious enduro rider was Suzuki-inclined he didn't have a choice, it was either the PE250 or nothing. It didn't leave a lot of enduro classes to ride in either. That was an international problem, particularly considering most top overseas ISDT competitors are on lightweight machinery.

The factory considered, but found it had no case for converting its RM370 to an IT400-alicer. Mindful of the IT175 success story, Suzuki's engineers created instead a 175 cm³ capacity enduro racer. And just like the IT175, the PE175 is a rare machine to be found sitting on the showroom floor. Like all of the Suzuki motocross machines, they're pre-sold before they even make it to public offering.

And the PE175 is not a cheap machine by any means — it's about one and a half times as dear as a standard trail bike of the same capacity. It's also a lot better and a lot faster. It will blow the blinkers off any standard trail machine, capacity regardless. What it lacks in cubic inches it makes up in lightness — the PE175 weighs only 108 kg soaking wet, and that makes the world of difference!

Engine and performance

Internally, the PE175 engine has some similarity to Suzuki's new street 250 with reed valve induction working together with piston port timing. The 175 is not a scaled-down version of big brother PE250; in fact it is totally the opposite internally. Bore × stroke dimension on the 175 is 62 × 57 mm so the machine is very over-square. The 250, at 67 × 70 mm has a long stroke compared to its bore. This translates to a PE175 which revs a lot harder than the 250 and performs totally differently although it is only a marginally smaller machine.

On the outside the engine design hasn't altered drastically over the last decade. In fact the fin design and sound deadening plugs are identical to those used on the early model TS trail machines. For a 175 cm³ powerplant the PE looks big though, even slightly larger than the 250 because of the additional length of finning supplied to dissipate the heat produced by the increased engine speed of the revised powerplant. If it wasn't for the badges even Suzuki followers would have difficulty telling the two machines apart. Only the cosmetic touches like front and rear guards, expansion chamber thickness and clutch actuator position give away the 175 in a crowd of 250s — not to mention that the 175 would probably be in the lead in a competitive romp anyway.

Carburetion is through a 32 mm Mikuni, and that size bolted to a reeve sucks the petrol through pretty quickly. The bike uses premix and Suzuki recommends a 20:1 ratio. We changed this on test because there's nothing worse than not being able to see the trees for the two-stroke smoke. Into the tank went a 50:1 mixture of super fuel and Bel-Ray MC-1 two-cycle racing lubricant which worked perfectly. Most racers are using this type of mixture, in some cases leaner. We found it gave a good plug reading and blew hardly any smoke except when cold. Be warned — it's expensive oil.

Horsepower claim for the 175 is 18 kW, high for a machine of that size and in the riding obviously more than Yamaha's IT175. The 175 shows only a 3 kW disadvantage to the 250, which means the two bikes' power-to-weight ratios are so close it's not worth worrying about which one has the advantage.

Unquestionably the Suzuki likes to run with the throttle screwed on, even though there is surprising torque low down under the peaky power-band. The engine performs and feels more like a slightly modified 250 and it will easily drag itself out of tight situations with low revs; it's just that nothing dramatic happens until the power-band comes along. Purposeful wheelstands to clear rocks or puddles are not easy unless the engine is revving quickly but the PE175 doesn't have to be ridden hard to stop the plug fouling. You can potter around all day on low revs without any problems.

Like the IT175, the PE prefers to be "short shifted" (slotted into the next gear before the redline) and the smoothest ride was by changing slightly before the power peak.

We could write a book about starting the bike. It was good sometimes, temperamental at others, and in all cases possibly more the fault of the rider than the machine. The technique was to pull the choke button on a cold start and give the PE a kick — but never, never, never screw on the throttle. If you were lucky it would start second kick. If not, look forward to several more kicks.

On one occasion the little ***** took about half an hour to start with the kick starter. Clutch start it you say? We already tried that, but didn't feel like pushing the PE back up that 30 degree sloping dirt trail. It was either that or push it in the river — which at one stage of the game looked quite tempting. It finally fired after much "cleaning the fuelled-up plug on the flameless shirt" trick.

Hot starts were generally less of a problem but the Suzuki tended to loading up when dropped so three or four kicks were needed here as opposed to the single kick when the engine was hot. While the PEI ignition couldn't triumph over a gulf of fuel, it did keep the plug firing with the bike near submerged. We figured the 12-litre tank should last for approximately 120 km under enduro conditions.

Performance

The drag strip is possibly not a very appropriate test of the PE175, but the machine does have ADRC compliance and can be registered and street operation offers relevance to a measure of the machine's performance in a straight line.

The SS400 performance it turned in was rather good. Absolute maximums were difficult due to the low gearing in first and also the absence of a tachometer but the best time was 17.6 seconds at a terminal speed of 130 km/h. The last three runs averaged 17.7 seconds implying the PE can run pretty consistently under flat out acceleration conditions.

The high reduction in first gear meant a



Left: Machine is much in the mould of its bigger brother and opposition brands; well-equipped and tops in indestructibility. Yellow parts are all plastic.

The PE175 jumps easily and flies straight. Lightness is the key to a fast new dimension in trail travel, but without the peaky power of most small bikes.



lot of care had to be taken moving off from the line to avoid terminal wheelstands. Once moving we just ran the 175 up to the point where power started to drop off before changing in each gear. Sixth was picked up well before the end of the SS400 and by the end the PE was travelling nearly at its 130 km/h top speed anyway. Consider the XT500 for an interesting comparison. The big Yamaha will cover the SS400 in about 15.8 seconds. That makes 17.6 seconds for the PE175 not too slow at all.

Transmission

The PE175, like its IT counterpart, is equipped with a six-speed gearbox to make best use of the 172 cm³ engine's power distribution. Overall, the ratios are well-suited to the bike's purpose. First gear is low (32.7:1) and very good for slow slogging along tight bush trails, but not utterly unmanageable when it comes to flat out acceleration sections. Top gear is good for about 130 km/h along flat, reasonably smooth, logging roads and the little 172 cm³ engine doesn't feel at all strained to keep up the pace. Unlike the IT175, there isn't any need to shift down to fifth gear on smooth dirt roads to maintain road speed and engine revs.

In between, other gears are evenly spaced although the third to fourth jump is slightly larger than the rest. This difference is not at

all noticeable on the dirt, probably because everything happens so quickly around the engine redline region.

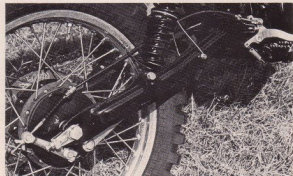
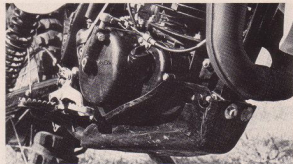
The gearbox change mechanism is faultless on accurate changes and super-short in lever movement. A rider wearing motocross boots needs to take care not to accidentally snick the box into the next gear when negotiating rough terrain.

The clutch is surprisingly light with smooth-working cables running through large, round plastic guides.

Suspension and off-road handling

Casual dirt riders could be excused for thinking Suzuki's PE175 is just an IT in yellow clothing because that appears to be the case. It also proves to be the case in comparison against the IT's very good suspension. The PE's suspension is extremely good both front and rear for either high speed or low speed work. Japan has just recently discovered the marvel of leading axle forks (although most European manufacturers have been using them for years) and fitted to the PE is a pair of oil-damped leading axle forks with a very long travel of 230 mm. Obviously the 175 has been designed with serious intentions, most of them directed against Yamaha's IT175. In its front forks the PE offers progressive units of 230 mm travel opposed to 203 mm on the IT175 and 195 mm on Suzuki's own

Take 108 kg soaking wet plus a trick new and better-breathing powerplant on "secrets from motocross" suspension and you've bred a PE175. No wonder it'll blow the blinkers off the rest. It'll probably even do it to the Europeans...



Top: PE175's sumpguard is a good 'un. Clutch actuator arm is major external change from 250. Note also creased pegs and pedal.

Above: Sanity prevails in a succession of trick bits. Beefy square section swing arm is all steel and pivots in needle rollers. Laid forward gas/oil shocks use two springs. It's a very good rear end.

Right: Leading axle forks are raked 40 degrees. Trick stuff for the dirt. Bike likes to be powered through corners to hold front end adhesion.



Above: Wonder-tool! Have you got one? Let's just say the basic idea is good. But don't leave the multigrips at home.



PE250. These new units are interesting. On compression they refuse to top out but are very soft on rebound and comparatively easy to stretch out full travel and bottom.

Why?

Dunno. No-one at Suzuki knew much about the internals of the legs, but they're obviously a product of revised suspension thinking. It's also likely they've about enough movement as it's logical to offer on a machine which can be run on the street.

At the rear, Yamaha's cantilever suspension advantage of several years has disappeared, whittled away by advances in gas/oil shock absorber technology. The PE is fitted with Suzuki's "Tru-Trac" suspension system which uses nitrogen gas and oil-damped shock absorbers with two springs and three-position preload adjustment facility. It's a set-up shared with the RM motocrossers. The rear units are heavily forward angled and offer a rear wheel travel of 44 mm, again much more than both the TT175 and the PE250. The two shock absorber mountings and the rear swing arm pivot point describe a neat isosceles triangle with the shock absorber as the variable third side.

The rear swing arm pivot is mounted in needle roller bearings and the swing arm itself has been beefed up. Although impressive for the bike's capacity, the material is still pressed steel welded into a square section arm and not heavy alloy like that fitted to the current model Suzuki RM motocrossers.

So how does it all work on the dirt?

The PE is one of the easiest bikes to really go fast on in the dirt without getting into trouble. Its lightness-inspired agility offers the PE the ability to regain its composure almost naturally after being thrown into rather nasty situations; the type of positions one would not expect to come out of unscathed when riding anything less than a pure-bred motocrosser.

The machine jumps easily and flies straight. Bringing the front wheel up is not hard at all even when hurtling down a 30 degree incline in third gear or pulling the power on out of a corner, even though under flat out acceleration conditions the front wheel stays firmly on the ground unless provoked.

Handling over wet and slippery rocks, loose logs and long, uphill muddy slopes was very good. In all cases the PE tracked straight and true. Sure, you'd expect that — but we didn't expect so much of it! Admittedly we had an advantage. Our test bike was fitted with a good set of motocross tyres front and rear which helped greatly in the muddy and more slippery sections of track.

The PE (or its rider) did get out of line sometimes but, contrary to gut feeling, the solution was just to screw on the power and let the bike look after itself.

The front wheel fork rake of 40 degrees is large compared with most other machines. Sealed road high-speed handling does suffer a rather wallopy ride in the trade-off — but on the dirt things are different! We saw at some stages 130 km/h on the dirt and the PE was rock-steady, the front wheel handled all situations without fault but was more predictable pushed through corners under

Suzuki PE175

ENGINE

Air-cooled single-cylinder two-stroke. Induction through piston-controlled porting and reed valve. Lubrication by fuel/oil premix.

Maximum claimed power	18 kW at 9500 rpm
Maximum torque	18.5 Nm at 7500 rpm
Bore x stroke	.62 x .57 mm
Displacement	172 cm ³
Compression ratio	7.6:1
Maximum engine speed	10,000 rpm
Carburetion	Single Mikuni VM32SS
Air filtration	Polyurethane foam element
Starter system	Primary kick
Ignition	Pointless Electronic Ignition

TRANSMISSION

Spur gear primary drive to wet multi-plate clutch. Six-speed constant mesh gearbox with one-down five-up pattern. Final drive by roller chain. Ratios (overall:1)

First	32.701
Second	23.431
Third	17.430
Fourth	13.229
Fifth	11.069
Sixth	9.260
Primary reduction: 2.761:1	
Secondary reduction: 3.833:1	

FRAME AND BRAKES

Semi double cradle steel tube frame with oil-damped telescopic spring forks up front. Roller bearing mounted swing arm at rear with nitrogen-damped shock absorbers using three-position spring preload adjustment. Single leading shoe drum brakes both front and rear.

Front suspension travel	230 mm
Rear suspension travel	244 mm
Fork rake	40 degrees
Fork trail	130 mm
Front brake diameter	145 mm
Rear brake diameter	165 mm
Front tyre	Metzeler 3.25 - 21
Rear tyre	IRC 4.00 - 18

DIMENSIONS

Dry weight	98 kg
Seat height	830 mm
Wheelbase	1420 mm
Ground clearance	280 mm
Fuel capacity (incl reserve)	12 l
Fuel reserve	Nil
Engine transmission oil capacity	800 cc

PERFORMANCE

Acceleration	
Standing 400 metres	17.6 secs at 120 km/h
Average of last 3 runs	17.7 secs
Zero to 100 km/h	10.9 secs
Maximum speed	130 km/h

Braking	
From 100 km/h to zero	41.4 metres
Average of last three stops	42.7 metres
From 80 km/h to zero	16.2 metres
Average of last three stops	16.2 metres

Fuel consumption	
Average on test	10.8 km/l

SUMMARY

RATINGS

ENGINE

	Poor	Below Average	Average	Above Average	Outstanding
Responsiveness					
Smoothness					
Low rev power					
Midrange power					
Top end power					
Fuel economy					
Starting					
Quietness					

TRANSMISSION

	Poor	Below Average	Average	Above Average	Outstanding
Clutch					
Gearbox operation					
Ratio suitability					
Drivetrain freplay					

SUSPENSION

	Poor	Below Average	Average	Above Average	Outstanding
Front					
Rear					
Front/rear match					

DIRT RIDING

	Poor	Below Average	Average	Above Average	Outstanding
Ground clearance					
Steering (overall)					
Braking on dirt					
Sliding					
Jumping					
Hillclimbing					
Slow, raggedy work					
Ease of throwing around					
Ability to forgive rider error					

STREET RIDING

	Poor	Below Average	Average	Above Average	Outstanding
Riding position					
Seat comfort					
Ride comfort					
Highest cruising speed					
Touring range					
Street handling (overall)					
Stability at speed					
Braking on tar					
Piloting					

GENERAL

	Poor	Below Average	Average	Above Average	Outstanding
Location of controls					
Lighting					
Rearview mirrors					
Horn					
Toolkit					
Quality of finish					
Overall styling					

VALUE FOR MONEY

TEST MACHINE

Manufacturer	Suzuki Motor Co., Hamamatsu, Japan
Test machine	Suzuki Cornell Aust. Camella, NSW
Price	\$1389
Best points:	Light weight with very responsive engine, superb off-road handling with progressive suspension. A very easy to control slider.
Worst points:	Low-power lighting, temperamental engine starting and unsteady (because of the large fork rake) high speed sealed road handling.

power. Anything short of this could induce front wheel sliding.

Rear slider tactics are a natural with the PE but the transition between grip and letting go is fine and hard to pick accurately. When the powerband hits under hard acceleration the back wheel can break loose without provocation in four of the six gears. If you're sweeping around a corner when the power comes on in second or third the bike will break out. It's very predictable once mastered; the more power, the more slide. That's all there is to it.

Suddenly there's a new "Playbike Of The Year" ahead of the IT175...

Braking

The sealed road braking of the PE175 left a lot to be desired, and that's exactly what we expected with the full knobby tyres and extra long suspension travel combination. Both front and rear brakes are black-painted

half-width single leading shoe drums, 145 mm diameter on the front and 155 mm diameter on the rear. For what they are they work reasonably well, although it's as well to remember this type of sealed road stopping power is not necessarily healthy on the dirt.

The distances taken to stop from 100 km/h and 60 km/h were 41.4 metres and 16.2 metres respectively. The 100 km/h stop is around six metres more than the average road bike takes to stop from that speed.

On the sealed surface the brakes operated very progressively with a lot of squeezing needed before either front or rear wheel began to lock up. Remember that we had this all happening on knobbies, on which the knobs have a tendency to "walk" along the road surface rather than skid.

Some brake fade occurred towards the end of the stops but that could only be expected from such small units.

On loose surfaces the brakes behaved differently and did lock up easily, especially the rear wheel. Even when lock-up was over-emphasised and deliberately promoted the PE didn't come off line at any time under brakes on the dirt.

Both brakes are well waterproofed. All the mud and water crossings we went through didn't adversely affect their performance.

Important points

The most commented-on aspect of the PE175 was its overall appearance, but we respected its looks as much for their functional qualities. Nearly everything on the bike is either bright "Pholonia Yellow" impregnated plastic or black-coated magnesium alloy, and all are functional. The guards are indestructible, the plastic tank resists dents and the plastic sidecovers are in the same category as the guards. Simply, the machine can be dropped without bending anything important — except maybe the rider. The single downtube double cradle frame carries a substantial steel sumpguard to protect the slim engine. Around the top steel tubes winds the relatively quiet expansion chamber exhaust, tucked away from both the rider's legs and frame manhandling points.

The soft, deep cushion seat is nests, takes the pain out of the slow reset (one kilometre at a time) odometer in the flexible-mounted speedo. The rest of the controls involve flat black handlebars, a push-button killswitch on the left side and an on/off light switch with high or low beam selection. Provision is made on the lever clamps for mounting mirrors although they don't come as standard equipment. Other detail to attract notes were the coated spring-loaded folding footpegs and the large petrol cap and filler hole (the hole's large enough to see the fuel when filling up from a drum and funnel).

The endurance style headlight is par for the course at a miserable 15 watts and the polycarbonate lens is well protected by a steel wire cover.

We particularly liked the idea of one tool for all purposes, and Suzuki claims its new gadget is functional for front and rear wheel removal, chain adjustment and plug removal. Maybe; but it ain't adaptable. What good is it to have the spanner to remove the rear wheel and no way to get the split pin off?

Still, the PE shapes up as a low-maintenance machine with detail like pointless ignition, roller type chain tensioner, rim saver tyres, and dustproof throttle, clutch and brake cables.

Conclusion

The Suzuki PE175 is a motorcycle for the serious enduro rider. It isn't a trail blazer — the IT175 did that a year ago — but it is a development of an already tried and proven formula. Enduro racing is a growing form of off-road competition and Suzuki has undoubtedly joined the party to show motorcycle superiority.

The PE175 performs adequately on the road and impeccably in the dirt and we suspect there's many riders prepared to accept the compromise.



Above: It's waterproof, it's a rocket, it's a slider. A bit tricky to start on occasions too. But buy one if you're into enduros.

Right: We'd call it "well tucked in".

PE175



HORSEFEATHERS

A column in which we apply our critical minds to the real worth of various products

High On A Flier!

THE PE175 proved a popular runner and seller in 1978 and TWO 'WHEELS' enduro enthusiast Kel we invited to ride Sydneysider and photographer Shane McLachlin's in a six-hour Hare 'n Hound earlier this year. As it happened the McLachlin/Wearne entry both won its class and placed fourth overall. The winning enduro racer was built up from very second-hand in only a few days — hectic though they were. Since the products involved proved successful in heavy competition (the ultimate test) we're passing on the word.

The PE's front end received the latest Trelleborg tyre, the four-ply 3.00 x 21 T544 which is used by Syd Moore and others. Not quite as good as the deep-bag Metzeler in softer loam, the Trelleborg has an overall advantage in being completely suited to the harsh Australian conditions and, more importantly, in the event of a puncture one can ride nine tenths until there is time to change tubes.

The rear tyre was a six-ply Bridgestone, a 4.25 x 18 M8. These can be run down to zilch pressure and just never puncture. The tubes used were the top Trelleborg heavy duty competition tubes, made from a mixture of natural and synthetic rubber which is not only stronger than other material but also 2.5 mm thick against the usual 1.5 mm thickness of others.

Magura forged motocross lever assembly and controls were added; quite simply the best available. A super magnesium throttle with parallel Gummier Gasser-style action was considered but ultimately not fitted as the PE has a good throttle and cable and making up a special cable was not worth the effort.

The Trelleborg tyres and tubes and the Bridgestone and Maguras should be available at good local dealers.

To ensure the riding remained as comfortable as possible for the six hours a set of



A squirt of lube to ensure the Fox Air Shox shafts are clean to start with. Rear tyre is 4.25 x 18 six-ply Bridgestone mated to 3.00 x 21 four-ply T544 Trelleborg.

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Stephen Cramer Products motocross bars was added to the front, braced black ones which are comfortable and strong. Available from dealers or from FarmLife Products, 449 Dean Street, Albury, phone (062) 28-9362.

A touch of class for the grips; the Oakley soft supergrip ones. These are made from natural rubber and each set takes more than 10 minutes to manufacture allowing for curing time. It shows they have no equal for comfort, fit and action. The design uses just a single ridge, which fits a rider's hands precisely. Even in the worst mud there is no slipping or loss of grip. At \$4.99 a set you can't go wrong. There's a choice of colors.

The KG Fork skins are additional protection for a privately-owned bike (and that counts when selling time comes up). These come in the right colors and fit over the sliders without removing anything. Neat. Light. Around \$14.95. And they may stop severe damage in rocky going or a get-off. Made from thick, soft, impact-absorbing plastic rubber compound.

At the rear of the PE the standard units came off and on went the big items, \$390 worth of Fox Air Shox. Simply because Wearne rates them as one of the best two units one can invest in. Note the term investment. The Fox Air Shox, used by Hattah Desert winner John Behrens and by Australian Motocross Champion Anthony Gunter, just last and last and last. One rebuild per season does the trick for these guns. About half the top MXers in the USA use these without worries.

In fact one pair of units such as the Fox Air Shox should last the life of the bike and perhaps more. The importers, Competition Developments have the full range of parts and replaceable items (Wearne, being suspicious of nature, went and checked all the spares out and spoke with people who had run them like Chris Cater and Hans Appelgren). Result was he bought (yeah, bought), a pair and after riding with them swears they beat any unit on the market except perhaps the Ohlins which he rates as the other top units.

The Fox Air shox use oil and nitrogen for damping and pressure; the oil weight can obviously be changed to suit and the gas pressure can also be varied to suit riders and bike and the conditions. Competition Developments has not had a failure of the units under racing use including crashes and two-day enduros.

The Fox Air Shox come complete; two sets of different-size bronze bushings and a complete detailed workshop manual, including good info on setting up, spare parts and disassembly and assembly. No other shock manufacturer gives the same information and assistance for use and maintenance. If you're a serious rider you shouldn't be without them.

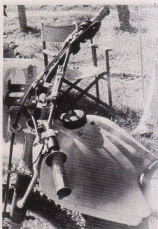
The difference to the PE175 was stunning, allowing Shane, who was used to the bike, to



Left and below: Shane McLachlan's PE175 minus speedo (who needs it) and equipped with Stephen Cramer handlebars, Magura lever holders and levers. The Oakley soft grips (left) have no rival. Each has an angled ridge for natural, constant grip no matter what the conditions. It's natural rubber and feels good. The Magura lever and holder are the best also. The PE175 throttle was not changed to a parallel type as it happens to be one of the best stock ones around. One of few we would not change.



Above: Super new Treilleborg 3.00 x 21; best in the business for enduros and the attractive soft plastic KG fork skins.



Right: These are the Fox Air Shox. Gunter uses them, Pace has chosen them for 79. Appelgren, Cater and Behrens use them. Superb quality and long lasting investment rather than just an expenditure. We mean it!

go much harder than he had ever before, without becoming tired or ragged. Even with settings too firm the bike was comfortable than normal.

Fox Shox are available from your local dealer through the national distributor, Competition Developments, PO Box 228, Eastwood, NSW 2122, phone (02) 654-9330.

So that's it — the anatomy of a class winner which went hard enough to stir Open runners.

—Kel Wearne

