

SUZUKI PE175

Yellow screamer with 21 horsepower

Just when you thought it was safe to love the Yamaha . . .

Motorcycle testing is a risky business—and not just because of the time you stand to lose lounging in your orthopedic surgeon's waiting room. We loved the IT175 we tested two months ago. We thought the other manufacturers were going to have to stretch themselves a bit to keep up with its torquey motor and state-of-the-art progressive suspension. Now, after a month of thrashing Suzuki's new Full Floater PE175, we realize that choosing a small-bore enduro bike this year is not going to be as easy as it first appeared.

The littlest PE will be Suzuki's only two-stroke enduro bike for '82. The PE250 and 400 have gone the way of the friction shock absorber and the suicide clutch, replaced by four-valve four-strokes with Floater suspension. The new thumpers will look, on the spec





PHOTOS: DEXTER FORD

pages at least, much like the Honda XR-series machines.

The PE175 is designed primarily for competition, with relatively little attention paid to the needs of the casual trail rider or weekend play biker. The bike is a direct result of the lessons learned by Suzuki's eastern-based enduro team; the aim of the development program was a bike Suzuki's top riders could win national enduros with right out of the box.

The few changes Suzuki made this year in the '82 PE engine are aimed more at broadening the peaky power curve than at increasing peak power. The upper edge of the bridged intake port is raised three millimeters, the exhaust port is raised 0.5 millimeters, and the shape of the expansion chamber is juggled to jibe with the revised port timing. The exhaust-port change by itself would have lowered the compression ratio slightly, but a 0.5mm-thick head gasket replaces last year's 1.0mm-thick gasket to even things out again.

Gearbox ratios are also shuffled this year to take advantage of the slightly broadened powerband. First and second gearbox ratios remain unchanged, but third, fourth, fifth, and sixth gears have all been lowered (raised numerically). The final-drive ratio has been made taller at the same time, giving slightly taller overall ratios in first and second, and approximately equal ratios throughout the rest of the box.

The 175s need horsepower, and lots of it, to be competitive on the national circuit, and Suzuki's engine designers have been moving up the rev scale in their search for ponies ever since the PE175 was introduced in 1978. As a basis for comparison, the IT175 we tested in April pumped out 20.8 horsepower at its power peak of 8500 rpm, and did it at the top of a very broad and usable powerband. Our PE175 delivers a little more urge (21.7 hp) at its own 9000-rpm peak, but it continues to make 21 horsepower

all the way from 8500 to 10,000 rpm; the IT signs off decisively at 9000. The PE's case-reed engine is substantially weaker than the Yamaha in the lower reaches of the powerband, though. The Yamaha is very much a torquer and the Suzuki still very much a revver.

The PE175, like most other Japanese 175s, is based roughly on the chassis of its manufacturer's 125 motocrosser. The new Full Floater uses a shock and linkage system similar to the RM125's, mounted to a frame that differs only slightly in head angle and bracketry from the RM's. The swingarm differs substantially from that of the RM to accommodate the PE's quick-change rear-wheel setup. The rear brake on an RM, and on some other dirt bikes, is mounted on the right side of the swingarm. PEs, however, use a unique quick-release rear-wheel design that requires the rear brake to be mounted on the left, concentric with the rear-wheel sprocket. The wheel can be pulled from the swingarm without disturbing either the chain or the brake assembly, but the setup requires a rear-brake shaft that runs through the forward section of the swingarm, transferring force from the brake pedal on the other side of the bike.

The Full Floater system used on the PE follows the basic layout of the system used on '81 and '82 RMs, but none of the parts interchange within the Suzuki line; the shock, struts, rocker, and, of course, the swingarm are all unique to the enduro bike. Travel at the rear is 10.63 inches, up 0.8 inch from the dual shock setup used last year. As on the RMs, the shock and rocker arm are aluminum, and the two struts that connect the rear of the rocker to either side of the swingarm are fabricated from steel tubing. There is no provision for adjusting the Kayaba shock's compression damping, but rebound damping force is a matter of choice. A knob at the top of the shock allows the rider to select one

of four settings; the number four setting provides 43 percent more damping than the number one setting.

The new Kayaba front fork provides the same 10.63 inches of travel as the rear; the fork tube and slider assemblies are also unique to the PE175. Fork tubes are 38mm in outside diameter, up 2mm from last year. Suzuki uses 38mm tubes on the berm-crushing RM250, so they're quite confident they'll be stiff enough for the smaller PE.

The Full Floater rear end has impressed us on every Suzuki motocrosser we've tested since its introduction, and the system on the PE did nothing to shake our confidence in the design. The response curve of the Floater seems to provide a smoother transition from initial softness to final stiffness than the other progressive systems, and the result is a plush, well controlled ride and consistently good grip at the rear wheel, regardless of the shape of the terrain passing underneath.

With the rebound damping set at the number two position for fluid response on slower trails, the rear suspension soaks up almost anything nature throws in its way with almost ridiculous ease. Ruts, rocks, and whoops that would have you gritting your teeth in anticipatory horror on other machines seem to float underneath the PE as if they were made of foam rubber. With the preload set at the stock position, it's possible to bottom the rear end over kick-up style jumps and in knee-buckling landings, but an average-sized rider will have to go out onto a Supercross-style motocross track in order to find terrain nasty enough to do it consistently.

The front fork surprised us a little. Its response is just as precise and progressive as the rear end, and the front and rear work together extremely well right out of the box. Fork action is soft and seemingly stiction-free in the first few inches of travel, and the effective spring rate rises nicely as the wheel comes up to keep pace with the rear wheel. In a long set of sandy whoops the bike stays level and tracks dead straight. Its steep head angle suggests a machine that requires the rider's full attention to keep it in a straight line, but the PE's outstanding suspension tuning, front and rear, keeps it pointing right where the rider wants it. Suzuki (and almost every other manufacturer this year) recommends no extra pressure in the fork tubes, though air caps are provided. Heavy riders and latent motocrossers might want to pump four to six pounds of air in to provide extra bottoming resistance, but raising the oil level in the tubes an inch or so would give the crazies the extra stiffness they need at full compression without compromising response at full extension.

The PE's steering-head angle is set at 28 degrees, a degree and a half less than the RM125. This gives a tighter turning circle and more immediate re-

SUZUKI PE175



PHOTO: PATRICK BRÖLLER

Suggested retail price	\$1529
Warranty	None
Number of U.S. dealers	Approx. 1600
Cost of shop manual	Included
Cost of piston kit	\$48.40

ENGINE

Type	Air-cooled two-stroke single
Port arrangement	Case-reed intake, one bridged intake port, four transfers, one exhaust
Displacement	172.0cc
Bore x stroke	62.0 x 57.0mm
Compression ratio	7.9:1 (corrected)
Carburetion	1 34mm Mikuni slide/needle
Ignition	Magneto CDI (PEI), 1 trigger coil
Lubrication	Premixed gas and oil
Air filter	Oiled foam
Charging output	25 watts

DRIVE TRAIN

Primary transmission	Straight-cut gears, 2.761:1
Clutch	13 plates, wet
Final drive	No. 520 roller chain, 106 links, 46/12

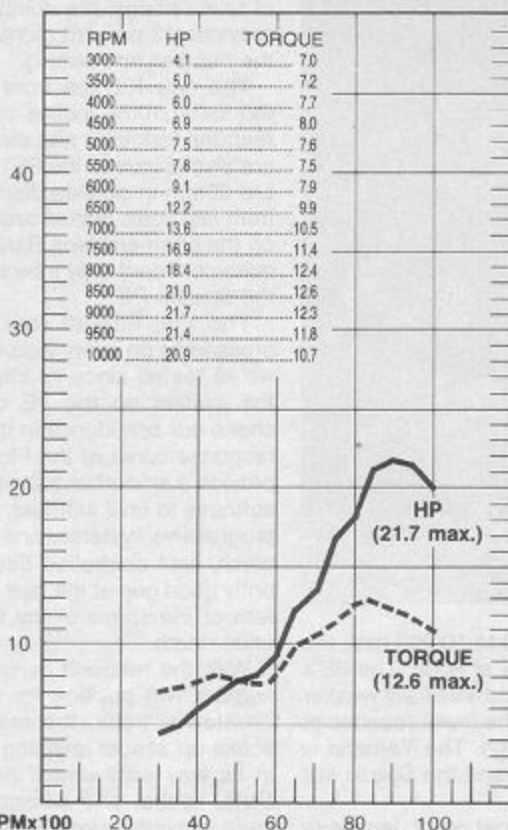
CHASSIS

Front suspension	38mm Kayaba, 10.6 in. travel, adjustments for air pressure
Rear suspension	Full Floater, 10.6 in. wheel travel, 1 Kayaba damper, adjustments for spring preload and rebound damping
Front brake	Single-leading-shoe drum
Rear brake	Single-leading-shoe drum, rod operated
Front tire	3.00-21 Bridgestone Motocross M23
Rear tire	4.10-18 Bridgestone Motocross M22
Rake/trail	28.0°/4.4 in. (113mm)
Wheelbase	57.6 in. (1463mm)
Seat height, unladen	36.25 in. (920mm)
Ground clearance, unladen	12.75 in. (324mm)
Fuel capacity	2.8 gal (10.6L)
Wet weight	250 lb (113.6kg)
Color	Yellow
Instruments	Tripmeter resettable by tenths

PERFORMANCE

Power to weight ratio, w/150-lb rider	18.4 lb/hp
Mileage & approx. range	30.6 mpg, 86 miles
RPM at 60 mph in top gear	7642
Speed in gears at (redline)	(10,000) 1st, 25 mph; 2nd, 32 mph; 3rd, 42 mph; 4th, 53 mph; 5th, 65 mph; 6th, 78 mph

TESTED FOR
MOTORCYCLIST
ON THE
BRANCH DYNO



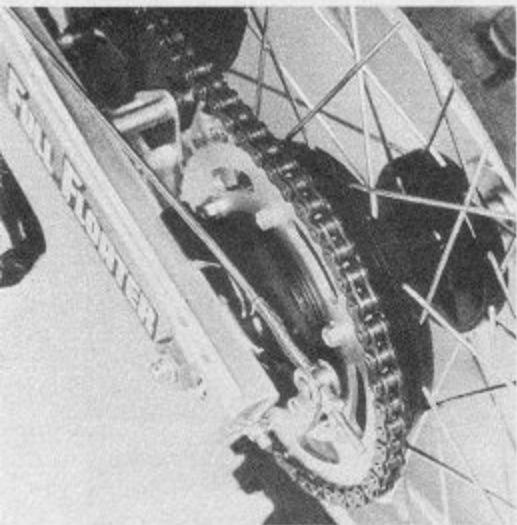
CORRECTED REAR WHEEL HORSEPOWER
TORQUE IN POUNDS/FOOT

PRICE	1100	1200	1300	1400	1500	
1982 Suzuki PE175Z						\$1529
1982 Yamaha IT175J						\$1599
1982 Kawasaki KDX175A3						\$1549

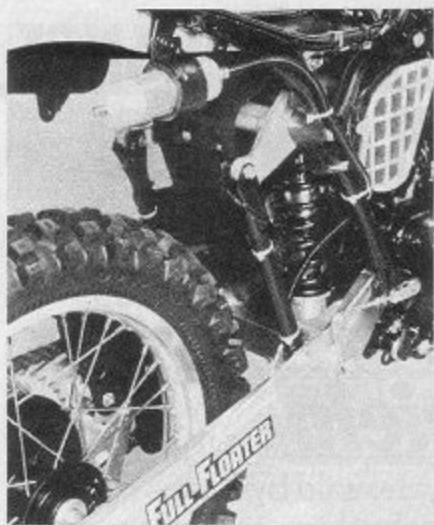
WET WEIGHT	200	210	220	230	240	
1982 Suzuki PE175Z						250 lb
1982 Yamaha IT175J						239 lb
1981 Kawasaki KDX175A3						240 lb

HORSEPOWER	17	18	19	20	21	
1982 Suzuki PE175Z						21.7 at 9000 rpm
1982 Yamaha IT175J						20.8 at 8500 rpm
1981 Kawasaki KDX175A2						19.3 at 9500 rpm

SUSPENSION TRAVEL	8.5	9.0	9.5	10.0	10.5	
1982 Suzuki PE175Z						Front 10.6 in. Rear 10.6 in.
1982 Yamaha IT175J						Front 10.6 in. Rear 10.6 in.
1982 Kawasaki KDX175A3						Front 9.8 in. Rear 9.8 in.



The quick-release rear wheel setup isn't new, but it's still trick. The brake assembly and sprocket stay on the swingarm; just pull the axle and drop the wheel.



The new Full Floater system is of the same design as those found on RMs, but each part is unique to the PE175. Shock, swing-arm, and rocker arm are all aluminum.

sponse for the tighter trails. The PE is as nimble as a motorcycle has any right to be. The steep head angle and grippy Bridgestone Motocross tires make it an effortless handler in rocky streambeds or between handlebar-shaving trees.

The low center of gravity of the chassis and the top-notch suspension setup give the Suzuki a very integrated feel; it responds to rider input as one coherent

unit. Turning the handlebar turns the motorcycle all at one time, where other taller machines react with a turn of the front wheel first, followed by a much slower turn-in of the rest of the chassis. The rider doesn't have to concentrate so much on the traction available at each wheel; he's left to concentrate on the heading and attitude of the bike as a whole. The smooth front-fork response

makes it difficult to tell at times whether the front wheel is on the ground under power, and it seldom seems to matter. The sudden power delivery keeps the front wheel off the ground a surprising amount of the time, but the cushy rear suspension and the balanced feel of the chassis make it easy to point the bike when you're on the rear wheel.

One look at the dyno curve will tell you how the high-revving motor responds out on the trail: it's a screaming yellow zonker. Between 6000 and 8000 rpm, the power more than doubles, and this translates to tire-spinning, front-wheel lofting, ground-gobbling *urges*. There's plenty of power there, if your skills are honed sharply enough to use it well, but the PE is not a bike for riders who can't use the gearbox and the sturdy clutch to keep the engine up in its powerband. You have to wind the motor out if you want to keep a strong drive going through the gears, and upshifting on an uphill has to be done with a heavy hand on the throttle and a sensitive finger on the clutch. Our PE stood up well to the abuse we meted out to it in the quest for a fast trail pace, but it seemed to take a lot of work to keep the Suzuki going as fast as the trail conditions allowed.

For all its high-strung behavior above 8000 rpm, the motor acquitted itself like a perfect gentleman at lower revs. It started on the first kick, every time, and would sit idling on the sidestand for days if you kept feeding gas to it.

We did everything in our power to drown the motor one particularly sodden day on the trail and even got into a river so deep that water was gushing over the gas tank. The little zonker just kept on wailing through the deluge and showed no signs of having inhaled any water through the well protected airbox.

The six-speed gearbox performed smoothly and precisely—with one minor glitch. A peaky motor with a balky gearbox is nobody's idea of a good time. The fold-back lever is positioned right where a frantic foot would expect to find it on a nasty uphill, and the action was usually light and positive. Shifting carelessly from first to second sometimes found the engine winding at about 22,000 rpm, the gearbox firmly shifted into neutral; but with a few hours on the bike we had all learned how to find the number two cog reliably.

The taller final-drive ratio Suzuki gave the PE this year is a change we'd like to undo if we were going to keep the bike for a season of enduros. The jumps between first and second and second and third are just a little too great to keep the engine singing through the gears without a lot of clutch work, especially when the terrain tilts skyward. Going up a couple of teeth on the rear sprocket would make life a bit easier in the slow going, and with the overdrive sixth speed sitting there in the box, top speed would not suffer appreciably.

OFF THE RECORD

I can't help but like the new PE175. I guess I'm just a pushover for any light, nimble, well-suspended dirt bike that can humiliate machines of twice its displacement on the trail. The PE's rolling chassis is quite an improvement over last year's, but the same doesn't seem to hold true for the engine. True, it makes a bit more power, but it makes it in the same high-revving way.

For me, the secret of going fast is not necessarily holding the throttle wide open all the time. The secret is maintaining a consistently quick pace, which I find more difficult to do on the PE175 than on Yamaha's new IT175. Though the PE makes a bit more peak power than the Yamaha, the IT is much easier to ride because of its wide powerband, and that enables me to maintain a faster pace over all types of terrain.

I'm simply not as impressed with the Suzuki's chassis as I am with the Yamaha's engine.

—Ken Vreeke

I think I'd get along fine with the PE in a smooth, fast enduro. In that situation, I'd be concentrating enough to keep it wound up and in the powerband. No greasy uphills, please. One bobble by the rider in front of me, and it's a B-rider bog-down for sure. It's not that I can't ride the thing; 95 percent of the time I can. And when it works, it's really good. It's just in that last five percent that the narrow powerband gets the best of me: like the right turn over the slime-covered fallen tree, or the bottleneck at the base of

the hill where I'd let my concentration lapse for a second and the Suzuki would fall off the pipe. Then I'd want a burst of power, and I'd get nothing. Then I'd be the poor jerk who has high-centered on the log or has added to the traffic jam at the base of the hill. Being an obstacle on the course is not my idea of fun. I'd rather ride torquier bikes like the IT, XR, or KDX. With these bikes, I can ride around the roadblocks instead of becoming one.

—Jeff Karr

My perceptions of the PE are colored by one little prejudice: I love 175s. Even with my considerable bulk, I can go faster on the little buzzers over almost any given section of trail than I could ever manage on a 250 or an open-classer. If you get out of shape on one, a quick dab and twist of the wrist can set you straight before you've fully realized the extent of your predicament. With state-of-the-art rising-rate suspension, the under-200 class is the class of the field.

The PE's motor is sadly deficient in mid-range power, but its chassis is so well dialed-in you can usually keep the throttle open far enough to never let the engine get near mid-range. The guy who sets up the suspension rates and chassis dimensions of dirt bikes at Suzuki is a friend of mine—and I have no idea who the guy is. He just manages to make almost every Suzuki feel just about right from the moment I plunk myself down on the seat.

—Dexter Ford

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The brakes did not impress us much at first. They both felt vague and mushy on our first rides, and washed out dramatically in the wet. As the miles piled up, the shoes and drums began to take more of a liking to each other, and with a hundred hard miles on the trip odometer, they had turned into the strong and progressive brakes we've known on Suzukis in the past. The hubs use the trick straight-pull spoke design introduced last year on Suzuki's motocrossers. The spokes went through a couple rounds of mild tightening as they bedded in, but then seemed to be happy to keep up an even strain on the Takasago rims.

Suzuki has obviously paid a lot of attention to the demands of its pro enduro jockeys in honing the rough edges off the PE. The seat/bar/peg relationship was an effective compromise for the variety of human shapes and sizes we presented to the bike, and the width and shape of the bar worked well in the tight trail conditions for which the PE was designed. The straight-pull throttle did an admirable job of keeping the cable out of the way of passing branches.

Suzuki has replaced the usual at-the-lever cable adjusters with a new design; the adjusters are now one piece and use a spring-loaded detent to hold the adjustment. This makes on-the-trail adjustments considerably easier; one gloved hand can reach down and spin the adjusters out in a matter of seconds. The secondary adjusters for the clutch and the front brake have been moved to the middle of the cables themselves, to make on-the-trail cable changes a little faster.

Suzuki's last remaining two-stroke enduro bike is a very competitive package, and its first-rate chassis makes it a viable choice for any serious enduro rider. The engine puts out more horsepower over a wider spread of revs than any 175 enduro machine we've ever tested—at the expense of very wimpy low-end and mid-range grunt. If you have the ability (or the ability to learn how) to put that power to the ground, the PE could have you zeroing checks all season. **M**