PE175 TRICKS

MAKING SUZUKI'S ENDURO ROCKET RIGHT

How to Fix All The Little Things You Didn't Know were Wrong

By Ollie McKagen

Suzuki seems to have had a firm grip on making reliable and well-detailed dirt machines ever since the RM and PE series were introduced. However, the '79 PE175 has several quirks. The suspension is not nearly perfect, and the exhaust system is poorly thought-out and not matched to the carburetion. The result is a motor which is soft and a bit unwilling. Nevertheless, the general system is excellent and almost all of the dissatisfaction can be removed by following these steps:

Replace the rear suspension units with those from an RM250C or later. These have dual-rate springs and remote reservoirs to prevent rapid fading. They provide more uniform damping at the extremes of travel and will last in service about twice as long as the stock units. They are an excellent buy at about $84 each, especially when coupled with some of the new aftermarket reservoirs. (See DB, September '79.) Suzuki will also sell you a neat pad and clamp to mount each reservoir onto the frame, but the common hose clamp works as well.

The action of the front fork can be improved with equal ease: Remove the handlebars, fork caps, springs and sliders. Then push the damping rods out the top of the fork tubes with a suitable rod. Remove the fiber piston rings from the groove at the top of the damping rod. Replace them with neoprene O-rings with a 3/4-inch inside diameter and a one-inch outside diameter. These can be obtained at almost any place selling plumbing supplies.

The damping rod must then be pushed carefully back down the fork tube. It will be necessary to guide it through the damping valve assembly at the bottom by sticking a finger up through the central hole and feeling it through. Be careful not to batter the damping valve by hitting it with the rod as you push it through the assembly. Reassemble the remaining parts and fluids. The initial fit is rather tight, but the O-rings seat in one ride. After they do, the fork will be more responsive and will not lose its damping as easily as the oil heats up.

Suzuki uses needle bearings in the swingarm. These are very tough, but also very sensitive to dirt and water. Bearing life in the '78 model may be improved three or four times by installing a grease fitting. '79s already have it. Remove the swingarm and clean it internally with rags and solvent. Then drill a hole in the top center of the bearing tube with a 13/64 drill. Tap it 1/4-28. Use an angled Zerk fitting and tighten it to face away from the chain for ease of greasing.

Before reinstalling, clean out any chips which the drill and tap produced. After assembly, pump grease into the swingarm until it oozes out both end covers. Regrease the bearings every two or three rides. The grease not only lubricates the bearing, but also displaces water and seals out dirt.

All the PE175s around here seem to loosen their motor mount bolts during the first few rides. The upper rear is the one which needs the most attention. It is a 10mm high-strength item which can take 25-30 ft./lbs. The lower rear (8mm) should get 20 ft./lbs., and all of the front bolts about 15 ft./lbs. Take the hint and check them with a torque wrench every couple of rides, and check the rear sprocket bolts at the same time. Remember, that buzzing the motor is what loosens them, so upshift early.

The brake backing plates on both of the wheels have grooves around their circumferences. If an O-ring is installed in the groove, it will seal lightly against the hub and prevent the entry of a great deal of dirt and mud. The proper size is 5-1/4-inch I.D. by 5-1/2-inch O.D. by 1/8-inch (front) and 5-inch I.D. by 5-3/8-inch O.D. by 3/16-inch (rear). Both sizes should be available from businesses dealing in or repairing hydraulic equipment, earth-moving machinery or farm machinery. Another source is sellers of bearings and seals. Try your Yellow Pages for local vendors.

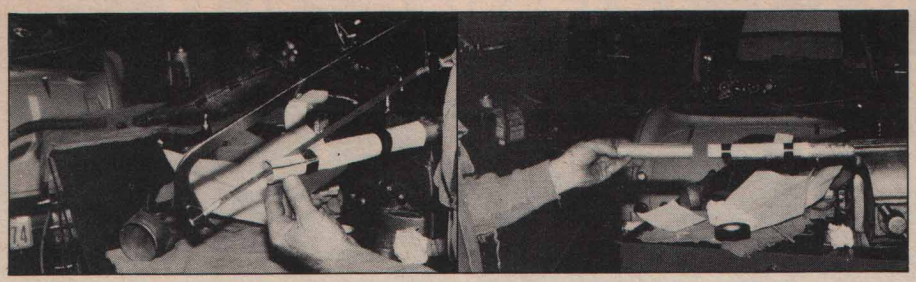
The powerplant in the new model is practically the same as the earlier one. The only two obvious changes are: a 34mm carburetor with a 220 main jet (up from 32mm and 190) and a different internal exhaust pipe configuration: the '78 model used a disc-type baffle and the '79 uses a fiberglass layer under perforated metal, at a slightly more downstream location. Both have metal mesh and perforated metal spot-welded along most of the rest of the interior of the pipe.

The villain is the disc, or the fiberglass-and-metal layer, respectively. Either should be removed. Cut the pipe apart at the point where it starts tapering down to the stinger. A long, thin chisel and a light hammer are your best bet for removing the unwanted pieces. The mesh and metal layer should be left in place. Its effect on performance is small and it does prevent the pipe from "ringing."

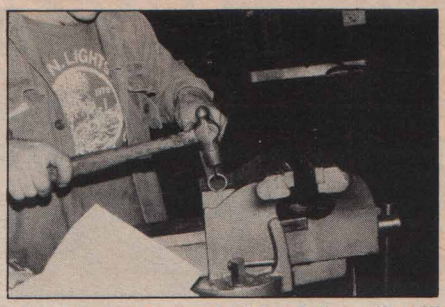
Another modification which helps both models tremendously is the internal stinger, whose dimensions are shown. This cuts off at least as much noise as the pieces you just removed, and it provides a big boost in low and mid-range power. A final touch is to remove a metal washer which is lightly welded a few inches inside the inlet end of the silencer.

It can be removed by battering it loose, starting at the inlet end, with a drift about 3/8-inch in diameter. Work on it from each end alternately until it is free. It takes only a bit of patience to remove it without damaging the rest of the silencer. If you use the internal stinger, the cycle will be quieter than stock. While we are back here at the silencer, it is worth noting that an overnight soak in carburetor cleaner every two or three months will clean out a lot of restricting gunk which accumulates there.

Removing the baffles from the pipe allows a lot more gas to pass out of the motor, and it makes sense to try to balance that by letting more in at the other end. The easiest way is to run without the air box cover. It was restrictive in 1978, and even though for 1979, the inlet tube in the cover is larger and bell-shaped on both ends, it is still restrictive. If you would like to run with the cover on (it does keep trash out and intake honk in), then get a couple of

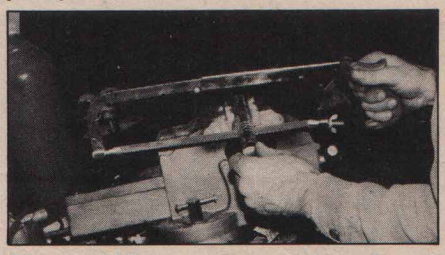


Tape pattern onto one-inch I.D. conduit. You should be able to cut half-way down before nicking the other side. Then cut off a piece, and... repeat the process for the other half.

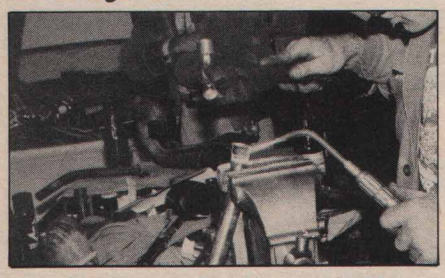


Hammering on each side of the split will partly close it.

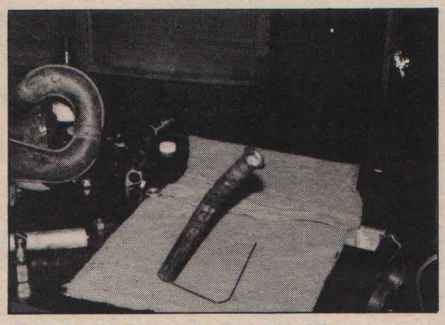
Then clamp each piece tightly and tack-weld seams. Align long seams and weld halves together.



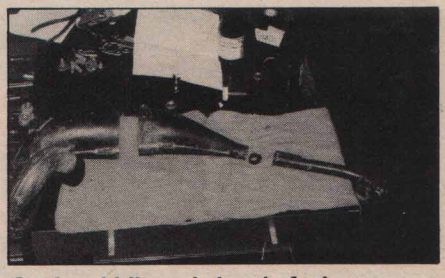
Then weld long seam up and cut almost through four places near small end. Bend cuts closed and weld up.



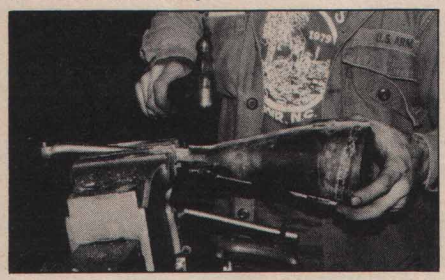
Starting deep and making several laps with torch and hammer makes flaring the small end easy.

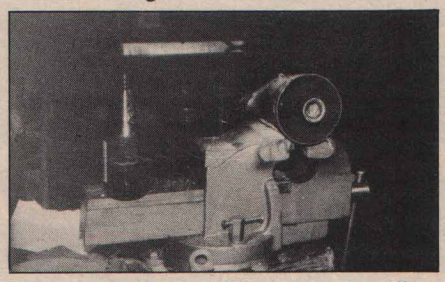


Finished stinger looks like this.



Cut in middle and ahead of stinger weld. Remove piece of stinger from pipe.





It may be necessary to expand small end by hammering seams. Slip stinger in, align and center, and weld around small end.

Weld on pipe. Tack stinger on. Then... Install the pipe. Bend stinger until it reaches mount. Remove and weld solid.

plastic film cans and mark out their diameters in the rear corners of the cover. Back up the cover with the end of a board and chisel out the two openings a bit smaller than you marked. Cut off the bottoms of the film cans and try them in the holes. You may have to bend the edges of the holes a bit more to hold the cans properly, but when it is done the air passages are almost three times as big, and water and mud are still directed behind, not on, your air filter.

The porting in both models of the PE175 seems to be identical. The ports are generally well-shaped and matched up. For someone without a lot of experience, there is little to be done. However, one thing which is a very definite help, is to add a generous radius (about .040- .050-inch) to the edges of all of the ports, including the exhaust port bridge. This does not change the timing figures much at all, but it has a very pronounced effect on the flow rates, especially at part-throttle when there is less pressure to force the gases through the openings. This step is a key to generous torque at all rpm.

The best way to add the radius is with careful use of round files (chain saw files) of 1/8-inch to 1/4-inch diameter. It takes time, especially on the sides and corners, but it is worth it. The radius not only eases the passage of gases through the ports, it eases the passage of the rings across them.

By the same token, a radius of about .020-inch on the skirt of the piston helps it past the intake port, and also spreads oil onto the piston as well. Do not radius the top edge of the piston; this tends to expose the top ring to the fire and leads to early failure. After filing, the edges of the ports should be lightly polished with #280 abrasive cloth. It is not necessary to polish the port interiors, but casting irregularities should be smoothed out with the files, especially at the entrance to the transfer tunnels.

Before getting into jetting, it is worth mentioning that since oil and gasoline both pass through the jets, changing

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the oil-to-fuel ratio will also change the jetting requirements of the motor. For example, 40:1 mix is about 97.5 percent gasoline, while 20:1 mix is about 95-percent gasoline. The difference, 2.5 percent, is equivalent to a change from #205 to #200 main jet at any given gas-oil ratio. It is not much, but it may make a big difference to your motor if it is already a shade on the lean side. The jet numbers given here are for 20:1 mix. If you use less oil than 20:1, you should be prepared to calibrate your carb to slightly leaner settings than those given.

A related point is that if you want to make a slight adjustment to your mixture strength throughout the range of throttle openings, you can do it by changing your gasoline/oil pre-mix ratio instead of your carb settings.

Anyway, the main jet used after removing the pipe and silencer baffles is a #200 for the 32mm carb and a #230 for the 34mm carb, and you have to modify or remove the air box cover, or it will run rich flat-out. Use a #30 idle jet in both carbs, unless you use the internal stinger. Then it's #20 and #25, respectively.

The needle will probably be in the stock or next richer position for all mods, but do not be afraid to drop it if revs pick up slowly off idle. Another note on jetting comes right out of the PE owner's manual: "Jet needle setting influences the carburetion for the throttle range 1/4 down... if the needle has been repositioned to enrich the mixture for 1/4 to 3/4 throttle range, the pilot air screw must be loosened slightly to make the mixture leaner for up to 1/4 range." Thus the needle has some influence on the idle mixture. The main jet, as the manual's chart shows, affects the mid-range as well as top end. They do not point it out, but clearly the idle jet is always flowing. Therefore, it affects mixture strength at full-throttle as well as off idle; total fuel flow in the examples given is either 220/230 (#200 main plus #20/#30 idle) or 255/260 (#230 main plus #25/#30 idle). In any case, about an eighth of the total mixture strength at full-throttle is from the idle jet. This means that tuning the carb is complex; everything affects everything else. For the cycle to run cleanly at all throttle openings, the proportioning or distribution of the jetting is crucial. Thus, the numbers given will suit the modifications given and very likely none other.

If you do make other changes, be pre-

pared to set your carburetor somewhat differently: Try other needles and slides, and pay a lot of attention to the idle and off-idle adjustments. Remember that you can jet your carb for various oil/fuel mixtures, and your rings will last much longer if you use as much oil as your plugs can stand. The same is true of a slightly rich fuel/air ratio, even if you must use a somewhat hotter plug. Also, remember that a cold plug will not prevent detonation caused by a too-lean mixture.

The changes given here will not lead an otherwise healthy motor into detonation, but if it should occur for any reason, here are two proper cures: Increase the octane rating of the fuel, and reduce the spark advance a bit.

If your rings or piston are loose, you need not bother trying to tune the motor to a fine edge, since blowby will dilute the fresh charge as well as prevent complete crankcase filling. The hot setup for fitting rings is to start with a pair for the next larger piston size and carefully file the ends until the installed clearance is .001-inch to .002-inch. Some careful filing of the cutaway for the ring locating pin will probably also be necessary to ensure that the ends of the ring will not bind on the pin when installed. If you are determined to keep that fine edge, you will replace the rings when the gap is about .006-inch—.008-inch and the piston when the clearance is about .006-inch. When the cylinder is bored for an oversize, the fit should be between .001-inch and .002-inch. Riding moderately for an hour will break in a motor with this initial clearance. After break-in, you should have at least six months of hard charging before your top end needs another piston.

LAST WORDS:—Keep after routine maintenance. A powerful motor is easily strangled by a dirty air filter or a clogged silencer. Bad wheel, fork or swingarm bearings cause good suspension to be useless. Prop the cycle on a milk crate after each ride, and feel for relative motion in the areas above. If any free play exists, adjust or replace the bearings involved. Keep cables lubricated and adjusted snugly in order to transmit smooth, undelayed signals to the mechanisms. If you are deep into dirt, you will need to clean the brakes after every run, even with the O-rings to help. Pull off your top end, and check clearances every run or two. The owner's manual has a nice little chart for most of this. The rest is just common sense. □