SNEAK PREVIEW

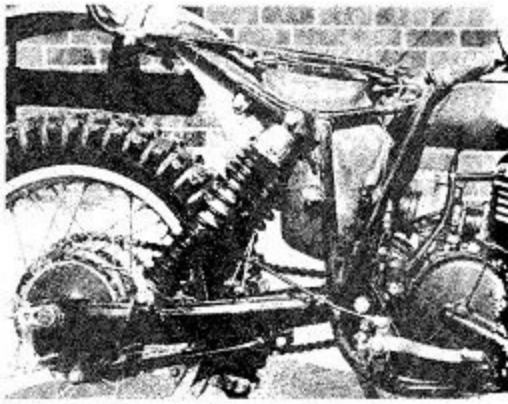
SUZUKI PE 250

By Frank Melling, British Editor

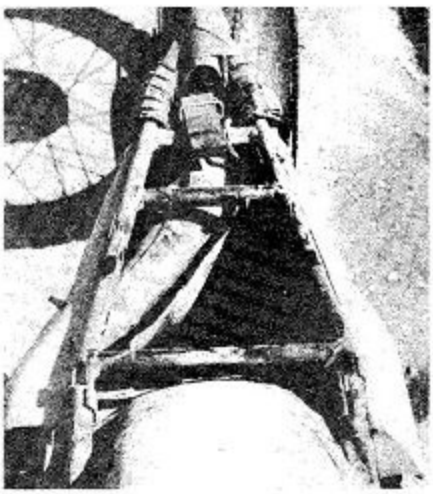
Hamamatsu unleashes a potent trials machine that's an Enduro rider's dream.

■First of all the Japanese revolutionized road bikes with neat, quick and reliable machines that anyone and everyone could enjoy. Then, they moved on to road-racing and now have a stranglehold on that sport. Motocross was the next in line and thanks to Roger de Coster and Joel

You can't do this on many trail bikes—and live to tell about it.



Note braced cross frame and one-piece water-tight air filter box. Shocks are Grand Prix proven DeCarbon type Kayabas and are excellent.



Exhaust is well tucked and is unnoticeable by the rider. The only entrance to the air filter box is through the seat-height cover—very effective at excluding water.

Robert, Suzuki has dominated that for the last six years.

There are a few bastions of motorcycling still left unconquered. Observed trials and speedway are two areas where small specialist manufacturers still dominate the scene and Enduros, too, are still ruled by specialist European machinery. Speedway is still untouched but the pressure is on the Spanish trials teams. As for Enduros, a whole new world awaits the private owner with the arrival of the new Suzuki 250 PE.

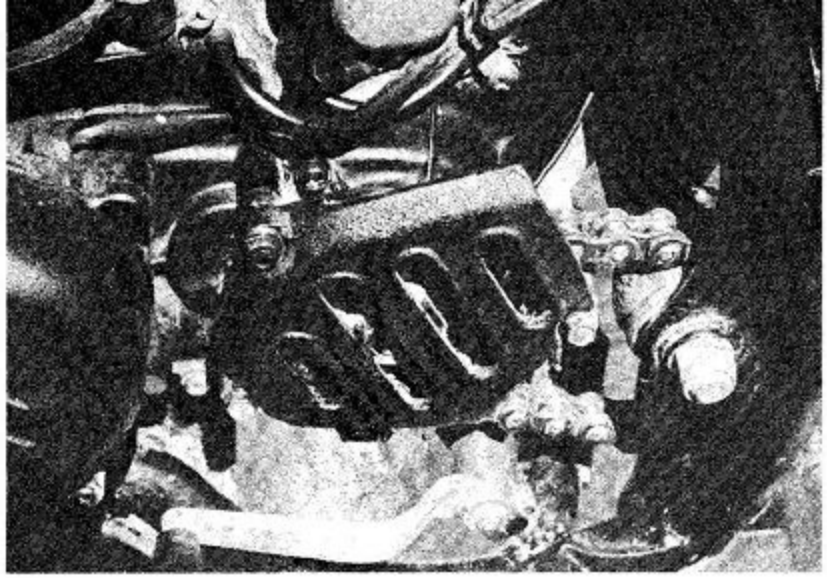
Competition Suzukis in Britain are distributed by Graham Beamish and his organization now handles all the testing and development work for Suzuki's off-road program. This encompasses both trials and Motocross and, lately, the development of serious ISDT machinery. Not modified trail bikes, but all-out Trophy winners. The basis of the bike was worked out by Beamish and his staff in the Autumn of 1975. In June 1976, the prototype arrived from Japan and for a first attempt, was amazingly near the mark. This Mark 1 version was the bike we tested and as a prototype, it had a hard life. Also, many of the minor faults which were found on the machine have been corrected in the production versions which will be on sale very early in 1977.

British ISDT Team member, Ted Thompson, has ridden the bike ever since June and when I rode it, some thousand miles had been logged without the engine ever having been stripped. Ted won a Gold Medal in the International Welsh Two Day Trial and has also done well in ISDT training events. He also managed two second places in a Motocross meeting with the Suzuki, a feat which few trial bikes can boast. Our thanks go to Graham and Ted for their co-operation in this article.

In their idle moments, Enduro racers usually conjure up visions of a bike which is as forgiving as a trials bike, accelerates like a road racer, handles better than a G.P. Motocrosser and is as trustworthy as a Labrador Retriever. Until the arrival of the PE, the ISDT Jawa came closest to this ideal and many people, myself included, thought it impossible to better the Czech's effort. We were wrong.

The heart of any Enduro machine is the power plant and on the PE it really is a piece of clever engineering. Basically a simple piston-port two-stroke with petroil lubrication, the PE's engine has an impeccable pedigree. The family line starts directly with the G.P. Motocross engines used by Joel Robert and comes down to this year's outstandingly successful RM production bikes. However, the PE is far from being a modified MX motor; it is a purpose-designed Enduro engine.

Although many of the details are still on the secret list, we do know that the PE engine has a longer stroke than existing RM engines. The main reason for this is that when a short stroke engine of only 250cc swept volume has its cylinder barrel filled full of holes, distortion takes place and high piston wear ensues. Further, Suzuki found that privateers, not unnaturally did not replace pistons as frequently as factory riders and when the piston started rocking in a worn bore, it was possible for it to catch on the exhaust port with nasty consequences. Next



Magnesium final drive cover houses neat carbon steel stone cutter. Hamamatsu really has done their homework.

The new long-stroke engine will also be standard on 1977 MX engines. PE's engine has soft power delivery and wide-ratio gearbox especially designed for Enduros.

year's MX engines will also have this longer stroke to give them the same degree of reliability as the Enduro models.

The PE breathes through a 34mm Mikuni into the cylinder port and also through a reed valve direct into the crankcase. This allows for a retarded port timing at low revs when the engine takes in mixture conventionally through the port in the cylinder barrel but still allows the engine to produce maximum power by feeding mixture through the crankcase-mounted reed at high rpm.

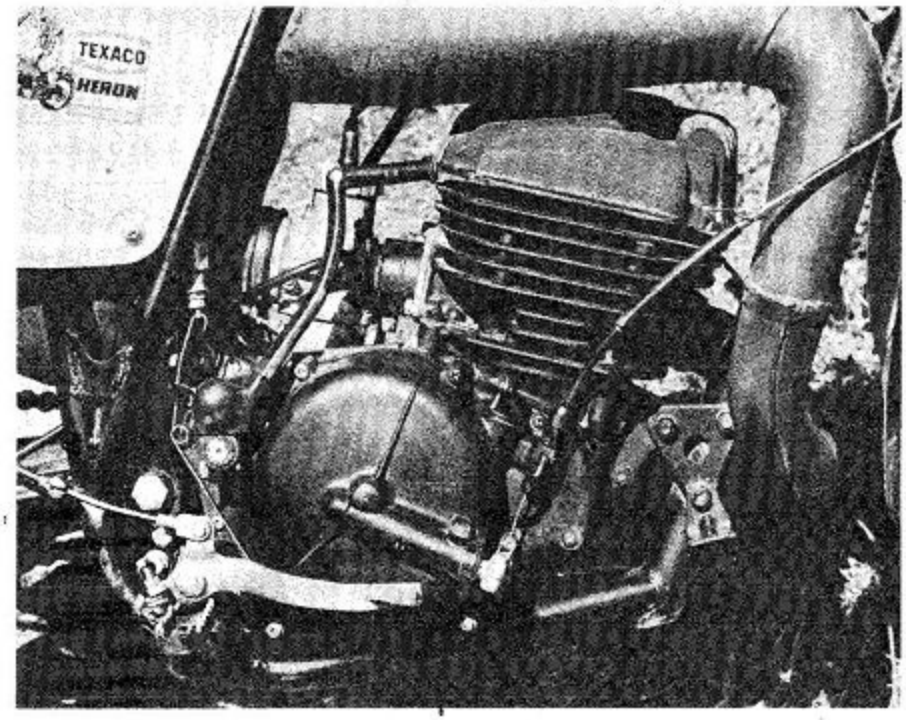
In practice, the design gives a degree of flexibility that until now we have only imagined were possible. Trying to beat the system, I engaged fourth gear at ten miles per hour and then snapped open the throttle. The PE chugged away reluctantly and then just kept on going all the way up to 75 mph.

Although there is no disconcerting power surge, the action of the reed-valve can be detected at about 3,000 rpm. Below this, the motor is just like a trials engine—as docile and tractable as any mudplugger. When the reeds open, there is real sting in the tail and the PE is one of the fastest accelerating Enduro bikes in the world.

By comparison, we ran the Suzuki against a 400 Maico Motocrosser and found it could just keep pace with this full-bore racing machine. The Maico did pass it quite easily but Ted Thompson had to use all the 400's power, and his superior courage to get by.

Ten minutes after racing the Maico, the PE was being pottered about in quite a tame fashion by our photographer, who had never ridden a dirt bike prior to this one. In fact, he had so much fun that it proved difficult to get him to part from the bike, something which would not have happened if he had been riding a fire-breathing monster such as the 400 KTM.

One final benefit of the reed-valve system is the low fuel consumption.

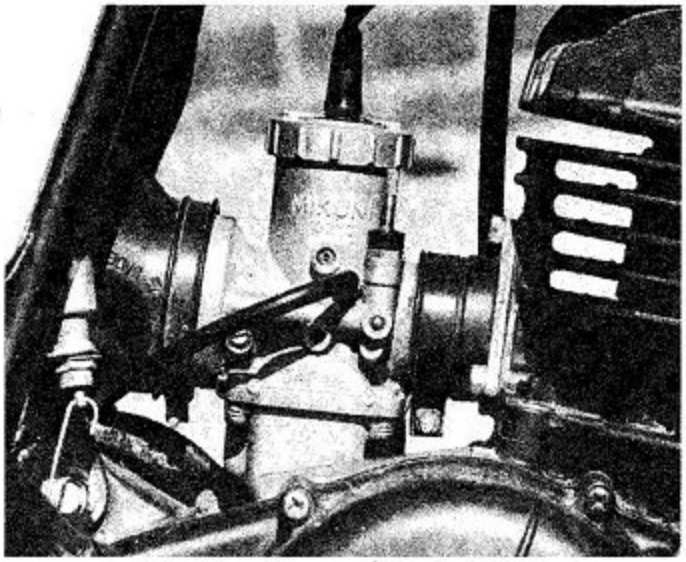


During the running-in period, Ted squeezed 100 mpg out of the bike, with road speeds up to 60 mph. Flat out competition work returns 44-50 mpg which in conjunction with the 2½ gallon tank, offers an effective range of at least 100 miles. Most organizers plan for fuel stops every 50 miles in an Enduro so the Suzuki could easily skip every other stop and still have a sensible margin of reserve.

Racers with an eye to the environment will also be pleased to note that because of the low fuel consumption, the blue pall which used to indicate a racing two-stroke in action is now a thing of the past. Barely a whiff issued from the Suzuki's tail pipe.

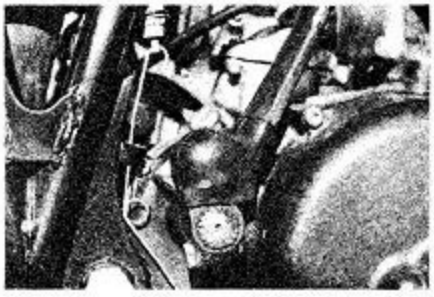
Less pleasing is the noise level, which although inside the limit set by the FIM for ISDT bikes, is still dangerously near the offensive. Thompson tells me that the bike was much quieter when a new and a combination of wear and tear, and consequent increase in mechanical noise, plus the silencer's packing being in less than pristine condition are responsible for the increased decibels. A Krizman US Forestry approved spark arrestor helps a little but future PE owners will have to take care on this score or run the risk of being unpopular on the trails.

Making the most of the engine's power are five well chosen gear ratios. Aficionados will debate their accuracy as Thompson and I did. Ted felt that the jump between third and fourth was a shade too big for optimum acceleration and I am not quite happy with the jump between fourth and fifth. However, let us be clear that we are largely splitting hairs. What is at stake is about one minute at the end of a seven hour ride and the only real solution is a 6-speed gear box, which will, no doubt, be the next step. In practical terms, the PE's ratios



34mm racing Mikuni is rubber-mounted a la RM250.

Long-travel front suspension is superb.



Kick starter is protected by a neat rubber boot.

are 99% perfect, giving a speed range from walking pace to about 95 mph, which should give most riders a fair chance.

Since I am not an ISDT ace, I found Thompson's bike a shade overgeared. If I were racing it, I would go one tooth smaller on the gearbox sprocket which would reduce the speed to a mere 85-87 mph and give an emergency gear for dealing with those killer sections which appear from nowhere just when everything is going well.

The gear selection, changing either up or down the box, was excellent, and I never missed a change. In deference to the test bike being the only PE in existence, I made a point of always using the clutch but a brief test session on the motocross track showed that the changes were equally good without.

The clutch itself is a 5 plate unit with alloy friction and drive plates butting against the steel clutch drum. It was light in action and progressive, so sticky situations in ultra rough conditions could be dealt with by judicious clutch-slipping. What was worrying was the evidence of clutch drag. Since the Suzuki could be started in gear, this could be a hindrance and it also affected this facility which could be a real nuisance, since being able to start a stalled machine without selecting neutral is of inestimable value in an Enduro.

The PE uses magnesium side covers and the right hand side one houses the worm gear for clutch release. The cover flexes noticeably when the clutch is withdrawn, as do the RM Motocross models, and this might be the cause of clutch drag. Equally, our test bike had done over 1,000 flat out miles without the clutch even being inspected and the difficulties I experienced could well be nothing more than wear.

Good as the PE power plant is, it is not the outstanding feature of the bike. My race-kitted Suzuki 250A has as much bottom and mid-range power (although it is 20 mph slower) and KTMs have all the Suzuki's top speed, although they lack its tractability. All the attributes I found on the PE, I had already experienced on other motors—what made it unique was that all the good things came in one package. However, handling was in a class of its own.

Except for the large gas tank and lights, the PE's cycle parts look to be stolen from this year's G.P. Suzukis. The fabricated box section swinging arm is there, replacing the round tubing which is used on the 1976 Motocross machines, as are the latest front forks. These are not the pneumatic pattern which De Coster and Wolsink have been experimenting with, but they retain the more reliable spring as a suspension medium—20 miles from the nearest house is not the place to find that your air-forks are leaking!

The frame is very much conventional Suzuki Motocross engineering with a single spine and down-tube splaying out into a duplex cradle and sub frame. The whole thing is neat, light and put together in a way which belies its Japanese ancestry and helps erase those horrible memories of early Suzuki attempts at building a Motocross chassis.

Interestingly, the steering head angle

SUZUKI PE 250

Suzuki PE 250 - Technical Specifications

Single cylinder two-stroke engine with oil mist lubrication-248 cc.
Magnesium side-cases.
Wide-ratio gearbox.
All metal clutch.
Electronic PEI ignition system fed from flywheel generator.
All specific engine details are still on secret list.
34 mm rubber-mounted Mikuni

Single loop frame with duplex engine cradle and sub-frame fabricated from chrome-moly tubing.
Front fork angle 60°.
Wheelbase 56.7 inches
Ground Clearance 10.4 inches
Front forks by Suzuki with 8.66 inches of travel
Rear dampers by Kayaba—De-Carbon pressurized floating piston type—with rear wheel movement of 8.41 inches.
Fabricated box-section swinging-arm.
3 gallon plastic lined alloy fuel tank.
Light-weight DC current lights incorporating rear brake light.
Krizman US Forestry approved spark.

If you can't stay on time with the PE's handling to help you, then you've really got problems.

remains at 60° which was considered optimum in the time of the BSA Motocrossers, so the Birmingham engineers must have got their act right back in the 1950s. The choice of 56.7 inches for the wheelbase is about ideal for modern Motocross machines, giving a good compromise between straight stability, nimbleness in corners and drive. Similarly, 10.4 inches of ground clearance is the minimum needed when long travel suspension is employed and on an Enduro bike, a little more could be useful—provided all riders could be guaranteed to be over 6 feet in height.

The Suzuki's suspension is acknowledged to be one of the finest in the MX world. For the Enduro rider, it offers the added advantage of not only being taut and responsive like a Maico or a CCM, but also offering an exceptionally easy and sensitive ride so that fatigue is reduced to a minimum. I rode the PE flat out for an hour round Thompson's MX course, with virtually no rest, and at the end of the session I was still fresh enough to at least think about more riding, if not actually desiring it.

Much of the secret of the PE's ride lies in the travel and quality of the suspension. The rear end is looked after by a pair of Kayaba dampers using the De Carbon type floating piston, pressurized by nitrogen, preventing frothing of the damping oil. The rear wheel axis is offset from that of the swinging arm so that the long movement of the rear wheel, some 8.41 inches, does not cause the rear of the motorcycle to lift excessively.

Suzuki's own front forks, offering 8.66 inches of travel, are exemplary, neither topping nor bottoming even under the most severe use. Like most top class MX suspension units the front wheel axle is offset so that the long multi-rate spring can be employed without fear of the coils fouling each other. The trail is then adjusted by having very flat fork yokes.

The PE's handling is so good that it would be easy to oversell it and cause skepticism in the reader. The best thing is that it is not set up for Motocross, but for Enduros, and this means that the ride is somewhat softer and consequently less tiring. I never found the outer limits of the bike's performance and the main difficulty is continually re-adjusting one's ideas about how fast a section could be negotiated without falling off. It was best when I came on to a nasty piece of terrain so fast that I didn't have time to panic for when this happened the Suzuki floated across the bumps and ruts as if they weren't there. On the faster stages, in particular, the advantages that the PE has to offer are tremendous.

When I did have the opportunity to see what was ahead and realize how fast I was going, things were not so happy. With the throttle rolled off, the PE tended to flop around more than was ideal but even so the ride was comfortable and sage, if not as neat as when the rider had full confidence.

All the tricks that the Enduro rider loves and needs, this bike will perform. Changing from one rut to the next is no problem since merely turning the wheel into the wall of the rut will force it to climb out. I gained so much trust in the PE that I began to misuse it deliberately, putting the front wheel in one rut and the rear in another. Every time, the bike climbed out with the minimum of effort and scarcely a shake of its head.

Cambers are another feature which strike fear into the hearts of most riders.

(Continued on page 60)

the sparks department is the last thing to be considered and, as is sometimes the case, is merely tacked on as an afterthought. Actually, if the truth be known, the ignition system is probably one of the most critical areas on any internal combustion engine. This is especially true in the case of a two-stroke.

In order to test our equipment, we had other riders ride the motorcycle. And on one given day we switched back and forth between the stock and the Martek unit on the CR125 Honda, and we wouldn't tell the riders which unit was on at the time. In every case they were able to tell us whether the bike felt better or worse than before. And in every case, without exception, every time we put the Martek unit on, they immediately could notice an improvement. In one particular situation we made no change whatsoever, but told the rider we did. They came back saying that there must be something else wrong because they couldn't feel any difference at all. So the suggestion that it should have been better held no water as far as the rider was concerned. But, after we did replace the stock coil setup with the CDI, there was no question that the bike ran better. This, in itself, says a great deal.

If you're looking for more pressure and have run out of things to do, or merely want something to bolt on your bike to amaze and mystify your friends, the Mototek CDI will probably do both quite nicely. And at the same time it makes a lot more power, especially in the case of the smaller machines. We found it much easier to detect a performance improvement on the 125 class machines. A little bit of additional power there really shows up. The bigger machines benefit, too, but in this case you generally notice a big improvement not only in top end power but in ease of starting also.

For more information write to Martek Products about your own particular machine. It's entirely possible that by the time this reaches print they will have a variety of other products available for different model machines. Until now the Enduro and Motocross machines have been pretty much neglected as far as optional ignition systems. And, heaven knows, in many cases they need a lot of help. The Mototek CDI solves a number of these problems quite nicely. ●

SAND DUNE SPECIAL

(Continued from page 26)

Work then progressed to smaller items, such as the steel tubing seatbrace that needed to be welded to the frame plus the front fork stops that are Yamaha rear footpegs with rubber covers. The steering lock is, however, quite generous. The front fender is a home-made item in fiberglass, and Lynden also made the fiberglass seat frame and the 2.0 gallon fuel tank. The fiberglass is impregnated with red metal flake and is of a remarkable quality. The handlebars are Pur Sang hi-rise clip-ons, while the rear shocks are Girling progressively wound units with a 70 to 100 pound rating.

The gearbox is a stock Yamaha five speeder, but the ratios are now 7.5, 9.0, 11.2, 15.7 and 24.7 to 1. The low first cog gives a good "starting" gear for deep sand, yet the bike will still do a cool 80-90 mph on the flat, depending upon whether the torque or speed exhaust system is used.

When Lynden finished with his project it was thrown on the scales to see what it weighed. The verdict was 265 pounds—a remarkably light weight for a 350cc twin. The "Crapo 350" has also proven to be a rugged bike, since several years of full bore pounding over the sand and desert has failed to shake it to pieces. And then there is the appearance, which is almost good enough to be a winner in show competition.

A ride on the special is a great thrill, mostly because of the tremendous power that is available. I had the chance to spend a day on the sand with the bike this past summer, and was greatly surprised at how well it handled. I was, of course, rather apprehensive as to how well the bike would handle in the rough, mainly because the engine is so wide compared to the motocross singles which handle so well.

The sand dunes where Lynden loves to ride are big and tall, and the room is obviously there to use all of the terrific power on tap. The fine dry sand really soaks up the power, yet Crapo could climb the tallest dunes on his snarling twin. By comparison, a stock Yamaha 250cc Enduro model seemed like a sick 125cc on the deep sand, and the poor rider could do nothing but play on the low rolling dunes while Lynden screamed to the top of the tallest ones he could find.

As a desert racer the twin would surprise most riders with its fine handling and power, but the tight corners used in motocross would probably find the more bulky twin at a disadvantage. On the big sand dunes Lynden can trounce the best 360 - 400cc MX bikes when the sand is dry, but the race gets closer when the sand is wet and the traction improved. One thing that many riders have noticed about the special is its refusal to shake its head when bounding over bumps on full bore. It is an exceptionally stable bike to ride and one that seems to instill confidence in its rider out on the dunes.

The Crapo Special is thus a unique bike built to do a specific job in a superior manner. Like many home-built specials around the land, it has performance characteristics that are decidedly superior for a unique local riding condition. Because of this, Lynden has never been trounced on the sand—at least by anything on two wheels!

There was, however, a very dark day in Crapo's life when a British Chevy V-8 powered rail job type dune buggy used its 450 hp to edge out the Yamaha 350, which prompted the creative Crapo to go home and begin the designing of the wildest sand cycle ever built. The latest Crapo Special II is, however, another story for another day. In the meantime, the Yamaha 350 remains as a superb special with outstanding design features as well as superior performance and workmanship. For some of our more creative enthusiasts, there is no other way. ●

SUZUKI PE250

(Continued from page 31)

The PE could be plonked along in trials fashion with the sensitive rear end clawing for grip. In fact, there was no aspect of Enduro riding, from first gear slots through forestry sections to flat out blinds on shale roads, which the PE doesn't do superbly well and with minimal effort. I keep stressing the lack of effort required with this bike for in a seven-hour event, it is not the first two or three hours which exact the punishment, but the last. There are several bikes which are a challenge to the PE when the rider is fresh and strong—they are not nearly so good when his arms are dropping off and he just wants to die peacefully at the earliest opportunity.

Everything on the bike is designed to make Enduro riding easy, and therefore as fast as possible. The seat is somewhat thinner than on the MX machine but is superbly comfortable. The footrest-to-saddle relationship is excellent and permits the riding position to be changed from sitting to standing with the minimum of effort—again not something which can be appreciated until one has stood up and sat down several times in one day.

The throttle, clutch and brakes are all feather light in operation. Both 6 inch brakes are excellent stoppers and the front can be brought into dramatic but controllable action with two fingers. The rear brake is just as good but the action is spoiled by poorly chosen length of rear brake lever and cable operation. These combine to give a heavy and spongy action, which is going to be the cause of much complaint on slippery descents. Since the cylinder head is already tapped to take a decompressor, the answer is simply to fit one of these little gadgets and dispense with the rear brake altogether on muddy sections.

The whole bike abounds in clever features which show that both Beamish and the Hammamatsu factory have done their homework. For example, the aluminum gas tank is plastic-lined to reduce the chances of losing fuel in the event of a crash or a fatigue split. The tank itself is carefully designed with no sharp edges or humps facing the rider—and anyone who has hit a petrol

tank hard will vouch for the importance of this!

Quick disconnect rubber shrouds cover the brake and clutch levers and this means that either control can be adjusted at the handlebar end in only a few seconds and without the rider having to remove his gloves. The air filter breathes through an intake panel in the top of the seat and there is no other entrance, so short of total tank-deep immersion, the Suzuki should keep going through even the most severe of river crossings. Neatest of all is a little carbon steel stone breaker fitted underneath the magnesium final drive cover. As Sachs experts will know, this mod cuts up any stones which get carried along the chain line before they can get behind the gearbox sprocket and smash up this area of the engine. What was once a factory mod on the German bike is now standard fitting on the PE.

I have been lenient towards the bike's weaknesses because our test bike was a prototype and most of the faults will be corrected on the production versions. The lack of q.d. wheels, particularly the rear, is an obvious failing, as is the absence of a center stand. A center stand is due to be fitted on the production bikes but it seems that the q.d. wheels will still be absent.

A fault which will be cured is the total lack of any chain guard. Beamish realizes that privateers cannot afford to fit a new chain after each outing and not only will there be effective protection for the drive chain but an improved chain tensioner and a chain oiler should give this vital mechanism some chance of survival.

The lights are, according to Thompson, both effective and reliable. I cannot vouch for the front since another member of the Suzuki team had been trying tree felling with the PE during a test session and demolished it, but the rear was acceptable and very neat. Incidentally, despite the terrible thrashing the bike received, the brake light was still in perfect order, which says something for Japanese electronics. The front light is due for relocation to a less vulnerable spot on later versions.

A quick disconnect fuel tank cap would also be a nice mod and save a few vital seconds in refueling, while Ted thinks that the speedometer head is too large and could do with tucking farther in. Personally, I like the existing one and it would be a great pity if the trip facility were lost during the miniaturization exercise.

Looking back on the PE, I am left with the warm glow which comes from riding an exceptionally fine motorcycle. I tested it to the limit of my ability and this meant thrashing round a motocross course and riding as though I were running for a place in the British Trophy Team. Clearly, this latest Suzuki has got all the makings of a world beating ISDT bike and it would not surprise me to see Thropy Teams mounted aboard these bikes in the 1977 Six Days.

What is amazing is that the PE has the facility to be a really enjoyable serious trail riding bike since it is quite capable of being ridden by any half-competent trail rider. What will determine the PE's sale more than anything else is the price. Current thought is that it will approximate the cost of the KTMs, Bultacos and other thoroughbred competition machines. This will limit the market to the serious enthusiast, which will be a great shame since this outstanding motorcycle deserves to have a wider audience. The first 20 arrive in December and for sure every one of them will be on the start line of the first Enduro of 1977. A PE won't win a medal for you, but it will go a long way towards it. ●

BARGAIN BASEMENT BOMB

(Continued from page 37)

The brakes, by the way, were quite good. We didn't even touch them.

After riding the bike for a while and doing some racing as well, the engine started to get tired. In fairness to Kawasaki we should mention here that the bike we started with was a well thrashed unit that had been on loan to another magazine. So it was no cherry that we were starting with. Replacing the used up piston and rings, the bike once again produced a reasonable amount of power for the weekend wars.

Because of the wide power range, adequate amount of travel, a good suspension system and overall chassis design, our KX250 is now competitive. Perhaps as a works machine it won't cut it, but how many of us are capable of riding a works machine anyway? You can get all of the trick machines you want to and spend untold sums of money, but in the end it's results that count. And the results we've achieved with these modifications are more than satisfying, even for an experienced rider. It's almost as though when the factory started with that fresh, clean piece of paper, and the engineers started drawing lines on it, they definitely had the right idea. And then, toward the end, somebody got in a hurry and messed it up. Whatever the case is, this chassis fix will put things right.

If Kawasaki only knew how close they came to having a real winner. . . . But if they did, that wouldn't give us anything to write about. ●

JAWA WORKS ISDT 250

(Continued from page 42)

later, the importance of what had just happened finally hit me. Not only had I just gone through the section faster than on any other bike I had previously ridden but the maneuver had been executed with far less effort. Best of all, no conscious effort was needed; in fact, one's mind could well have been on something quite different from riding, and yet the bike would still get around.

After this incident, I began to see the Jawa in a different light. What was needed was a conscious effort to forget all about whether the bike felt right or wrong and instead, just relax and ride it naturally. In this way, I found that there was quite literally nothing the Jawa didn't do superbly well. It could be ridden like a half-mile Triumph on the shale, broadsliding around the corners in complete control. Over jumps, it behaved like a Motocross machine, and although transmitting more of the "feel" of the terrain than most Motocross machines, it was as stable on the rough as any racing machine I have ridden.

It becomes easy to wax lyrical about this bike since there is nothing it doesn't do superbly well. The next day, we tried it around our Motocross test circuit and also on some trial sections. Out on the race track, it was a second a lap faster than the 250 G.P. CZ we tested in the August '76 issue of Dirt Cycle—a time which is all the more impressive if one takes into account that the CZ had the benefit of a dry summer track.

Ten minutes later, we had it on the trial sections—5 mph plonking in first gear, just like a Bultaco Sherpa. If there was a weakness in the Jawa's defenses, I don't know what it was, for everything we tried was met not only successfully, but brilliantly.

Ken Heanes, the British ISDT Team manager, says that the 250 lacked the immediate surge of the bigger bikes in the lower rev ranges, and I suppose this is true, since it is far more lively when revved. However, the bike only has a swept volume of 246 cc, and when the fact that the engine peaks at 7,500 rpm is taken into account, it can be seen that the Jawa is not a screamer, by any stretch of the imagination.

A final word of praise must be said about the Jawa and in one way it is the most important of all. I rode the bike almost nonstop for about three and a half hours in one afternoon, including a half hour stretch at what amounted to Motocross speeds. Since I am in no way an ISDT athlete, I soon got tired, as I do on any bike. Usually, as one becomes tired, the concentration and physical effort of riding becomes too much and speed naturally decreases. Not so with the Jawa. This bike could be kept going at the same relentless pace with only the minimum of effort from the rider since it does not require a conscious riding style, unlike some successful racing thorough-

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