PHOTOGRAPHY BY ART FRIEDMAN

# CYCLE GUIDE TRIALS TEST

# KAWASAKI KT-250

***A tame Green Meanie for the feet-up folks***

The roster is now complete. The introduction of Kawasaki's KT-250 means that all four Japanese motorcycle companies are officially in the business of building trials machines.

Kawasaki's method of developing a trials motorcycle sounds like a rerun of the method used by the other three companies—hire a former trials champion to act as a consultant. And really, that is the only sensible way to do it. Kawasaki's choice was Don Smith, a likable Englishman who by no mere coincidence is a former European Trials Champion—he has held that title three times. His job was to guide the designers and engineers into the construction of a competitive trials machine. And although the period of time it took Kawasaki to develop the bike was relatively short, they didn't appear to be in a big rush to get it on the market—at least not by usual Japanese standards.

The original Kawasaki prototypes used 450cc engines, obviously in an attempt to capitalize on the tremendous torque of that engine; also there normally are no displacement categories in observed trials. It was a perfect example of the bigger-is-better axiom, but it evidently didn't work. Subsequent Kawasaki trialers were fitted with 250cc engines, and the 450s were forgotten.

Does the fact that Kawasaki was the last Japanese company to produce a trialer have any particular significance? Maybe—or maybe not. It's sort of hard to tell just exactly when Kawasaki, or any other company for that matter, actually began development of their bikes. But if Kawasaki was last because they spent a little extra time with development, *that* could be very significant. Most expert trials riders have been impressed but less than thrilled with the other Japanese trialers, so perhaps the KT-250 will go on the market with two strikes against it—which is too bad because Kawasaki wasn't swinging the bat when those strikes were committed.

**THE BIKE:** The KT-250 has the look and proportions of a true trialer, even though it comes with a dual-beam headlight, a stoplight/taillight, a horn, and an ignition switch under the left front of the gas tank. Kawasaki put the horn and lighting on the bike to widen its appeal, hoping to sell KT-250s to trail riders and people other than dyed-in-the-wool trials fanatics. For the rider who doesn't want them, it's an unnecessary expense that has jacked up the purchase price slightly. But if you intend to do some post-dusk trail riding, they could prove quite useful. It's all in how you look at it.

In the engine department the oil-injected 246cc two-stroke single has a 69.5mm bore and 65mm stroke, which are unusual dimensions compared to most current 250s. The stroke is about five millimeters longer than normal, which should only enhance the low-rpm torque characteristics of the engine. The porting is mild by Japanese enduro standards, but a tad more radical than the Spanish trialers.

A set of straight-cut primary gears turns the wet clutch, which delivers power to a five-speed extra-wide-ratio gearbox. The ratios are typically trials-like: The first three are very low and spaced relatively close together. There's a large jump to fourth and an equally large jump to fifth. The final drive is by a 14-tooth countershaft sprocket, into a number 428 chain and 52-tooth rear wheel sprocket. A primary kickstart system is handy, allowing in-gear starts with the clutch disengaged.

An extra-heavy magneto flywheel not only gives the crankshaft some necessary inertia for trials, it also generates current for the KT-250's CDI ignition and direct AC lighting systems.

The 26mm Mikuni carb is angled to the left at the rear of the cylinder, but its positioning constitutes no porting trickery; the carb is angled to allow sufficient clearance for the air cleaner hose between the rear of the carb and the single rear frame downtube. It also allows more room for the over-the-head exhaust system, which tucks and snakes its way through the framework, exiting in a muffler/spark arrester behind the right shock.

The KT-250's frame is a double-downtube, single-backbone affair, with a welded-on perforated steel skid plate beneath the engine cases. The steering head sits at a 26.5-degree angle, and the front wheel trail is exactly three inches.

The slender front forks use dual-rate springs and permit 6.8 inches of front wheel travel. The front axle clamps to ears which are mounted ahead of the sliders; that gives the desired amount of front wheel trail while keeping the fork tubes closer to the steering axis. The theory here is to keep the heavy mass (fork tubes, dampers, and sliders) as close to the steering axis as possible, resulting in a light, quick steering feel. A neat little conical

hub laces to a smooth-shoulder alloy rim that mounts a 2.75 x 21 Japanese Dunlop Trials Universal tire.

At the rear each shock has two different rate springs, and their mounting allows 4.5 inches of rear wheel travel. Cam-type wheel adjusters permit you to take up excess chain slack quickly, but there's a spring-loaded tensioner on the left swingarm leg to keep the chain taut until you can tend to it. There's also a drip-feed chain oiler built into the left swingarm leg, with an adjustable metering screw for regulating oil flow. The sidestand mounts on the right swingarm leg, where it is out of the way of the chain. There's also a smooth-shoulder rim on the rear, shod with a 4.00 x 18 Japanese Dunlop trials tire.

The 1.6-gallon gas tank is steel, but the fenders and side covers are unbreakable plastic, as is the 8½-ounce oil injection tank hidden under the left side cover. The tank and covers are Kawasaki green, with white trim and white fenders.

**ENGINE AND GEARBOX:** A trials motorcycle has a very special set of engine requirements that are unlike any other machine. It must respond cleanly and predictably to throttle openings, especially at extremely low rpm; it must have an abundance of low-end and mid-range torque; it must be able to reach relatively high rpm in order to have the widest possible speed range in each gear; and it must have the proper amount of crankshaft flywheel inertia. There are other considerations, but these are the most important. The Kawasaki fares very well in every category but the last one.

The power output of the KT-250 engine and the throttle response are excellent, and it is easily capable of reaching 8000 rpm. The torque peak is at 5000 rpm, and the horsepower peaks at 6500 rpm. In normal trials riding you won't encounter any situations where more power is needed; there's always plenty on tap.

However, the engine could use more flywheel inertia. This is a problem that seems to exist in all the Japanese two-stroke trialers, and the KT-250 is no different. The mild lack of flywheel is evident in several ways. First, and most noticeably, is the suddenness with which the engine accelerates. The KT-250 is not as offensive in this area as the other Japanese two-strokes, but it is still not as smooth and gradual as the Spanish trialers. The quick acceleration is often a bother when you're making a slow, tight turn. Opening the throttle a very small amount will cause the engine revs to rise a bit too quickly, which sometimes causes the bike to accelerate when all you wanted it to do was maintain a steady speed.

The flywheel thing is also a minor problem when you need to go super slow. A good example is one particular short, steep climb that has an equivalent steep drop-off on the other side and a sharp peak at the top. To successfully make the climb, clear the top, and make a slow turn at the bottom of the drop-off, you must close the throttle as the front wheel crests the climb and let the motorcycle rock across the peak on the skid plate before descending slowly. If you go too fast over the top, you can't brake sufficiently for the turn on the other side. With the KT-250 the engine would stall about 50 percent of the time when we crested the top, even in first gear. Yet we rode the same section on two Spanish trialers, and they *never* stalled in first gear and almost never stalled in second. We checked their overall gear ratios and found them to be comparable to the KT-250's. The heavier flywheels in the Spanish machines kept the engines running for that brief split second when the rear wheel was barely turning.

The flywheel shortage also makes it a bit too easy to stall the engine with the rear brake. If you're descending a steep, loose hill, the powerful rear brake wants to lock the wheel and the crankshaft often doesn't have enough inertia to prevent it from doing so. The fine line between locking the wheel and not locking it is difficult to find, and so it often locks, stalling the engine. When it does, there usually isn't enough traction to get even those too-light trials flywheels turning, so you must start the engine by kicking or by rolling faster and engaging the clutch in a higher gear.

The flywheel situation isn't all bad, however. That quick acceleration is really useful if you're faced with a long, steep climb which doesn't permit much of a running start. In many of these conditions the KT-250 can often outperform the Spaniards. It really all depends upon the roughness or difficulty of the hill. If you have to back off the throttle for any reason, the lighter flywheels cause the engine to slow down more quickly, which makes it harder to regain or retain your momentum. And if the traction is poor, the quickness of the engine results in wheelspin, whereas a more gradual power flow could possibly allow the rear wheel to maintain traction. But if you get a clear shot to the top, the KT-250's brisk acceleration will get you there easily.

As we stated earlier, this flywheel shortage exists in all the Japanese two-stroke trialers, but perhaps it is less offen-

sive in the Kawasaki because of the length of the piston stroke. The engine lugs down exceptionally well and grunts out the revs willingly at sub-idle rpm.

The most useful gear is second, which we used for 90 percent of all trials sections. We occasionally found a section where third gear was best, and some really tight ones required first gear. Fourth and fifth are used only for trail riding or whizzing from section to section.

The gearbox will prove a trifle inadequate for anyone who is trail riding the KT-250. There are many places where third gear is too low and fourth too high, and even more situations where fourth is too low and fifth too high. But because the bike is intended mainly for trials, the ratios can't be any other way.

The clutch and gearbox on our bike performed flawlessly throughout the test. The shift lever is mounted so it aims upward at a 45-degree angle, keeping it from being bumped by a rock or the rider's boot. You must lift your foot off the peg and either kick the lever with the heel of your boot or catch the lever with your toe and pull rearward. At first we missed a few shifts, but as we got used to the feel of the shifter mechanism, we never again fouled up a gear change.

**HANDLING:** The KT-250's three inches of front wheel trail and 51- to 52-inch wheelbase suggest quickness, and your first ride lets you know that it is not just a suggestion—the steering is *very* quick. This allows the bike to be maneuverable in a way that a trials bike needs to be. It can make short, sharp turns easily, even on off-camber surfaces. And you can pick your way through and around rocks, logs, or other obstacles delicately, changing direction almost instantly.

The KT-250's steering and stability at slow trials speeds are excellent. It responds quickly and predictably to small movements of the handlebars, and even little amounts of body English will cause the bike to react accordingly. The tank is relatively skinny, and the seat is tiny and tucked out of the rider's way, so you can flick it back and forth between your legs or climb way up over the tank without hanging up on anything. The Kawasaki won't have to take a back seat to any other trials machine in the handling department.

Descending steep, rough grades or going off a sheer vertical drop-off requires you to pay attention because of the shortness of the front wheel trail. There's a definite tendency for the front wheel to fold under when it hits something solid; when the bike is aimed sharply downhill, the whole weight of the bike and rider is on the front, and it does everything possible to twist the bars out of your hands. If you're prepared, there's no problem, but if you get caught unaware, you may take a quick trip to the ground via the over-the-handlebar route.

The KT-250 is not exceptionally front-light for a trialer, but the combination of good low-end torque, comparatively quick acceleration, and a short wheelbase allow you to get the front wheel off the ground damn near anytime you wish. If you're in first, second, or third gear, suddenly dialing the throttle open gets the wheel up and over obstacles. In fourth you must yank on the bars mildly while twisting the throttle, and a fifth gear wheelie requires a hearty yank, timed with a quick turn of the throttle to WFO.

The KT-250 doesn't feel especially stable when it's going fast, but it's not scary, either. Only if you get into fairly deep sand or extremely rough ground will it threaten to pitch you off at high speed. Otherwise, you can trail ride or blast between trials sections with a reasonably high degree of confidence.

The forks and shocks work nicely and keep the wheels in contact with the ground quite well in trials situations. The springing is soft and the dampening rather minimal, but it results in the spongy type of suspension that seems best for bouncing over and off obstacles at three miles per hour. And since the shock springs are soft and the difference between the highest and lowest positions on the spring preload adjusters is not great, adjusting the preload doesn't have a whole lot of effect on the action of the rear suspension.

We would have liked a wider skid plate to protect the engine cases. Actually, the main engine cases are shielded well, but the outer covers, like the magneto flywheel cover on the left and the oil injection pump housing and cover on the right, are extremely vulnerable. We unintentionally bashed them into rocks on numerous occasions, but luckily nothing broke. A big sharp rock could very easily poke a hole in one of the covers, possibly damaging whatever is beneath it.

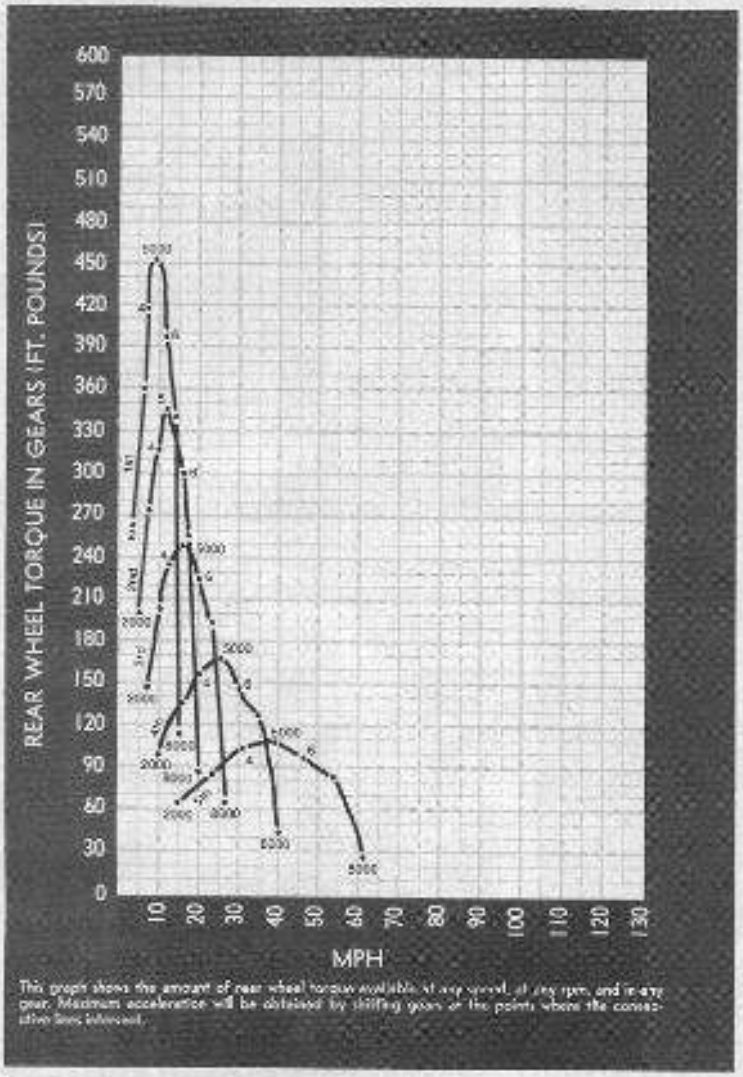
Since it is our policy to test motorcycles with the standard-equipment tires, we used the Japanese Dunlop trials tires throughout the test. They're not bad, but a serious trials rider would dispose of them in favor of a pair of English two-ply Dunlops or two-ply Pirellis, especially for use in Southern California. The stock tires are a bit too hard for maximum traction, but the flexibility and softer rubber compound of the English or Italian trials tires would further enhance the KT-250's excellent handling traits.

**COMFORT AND RIDE:** As we state in every trials test, a trials bike is not meant to be comfortable, at least in the usual sense of the word. The KT-250 is not comfortable for sitting down, but it wasn't supposed to be. The seat is designed to be out of the rider's way, the handlebars are shaped for a standing rider, and the placement of the footpegs is arbitrarily decided upon to give the rider the best control when he's standing. As a result, your body is bent in some unusual shapes when you sit down. But since you theoretically sit on a trials bike only when it is parked, it doesn't matter.

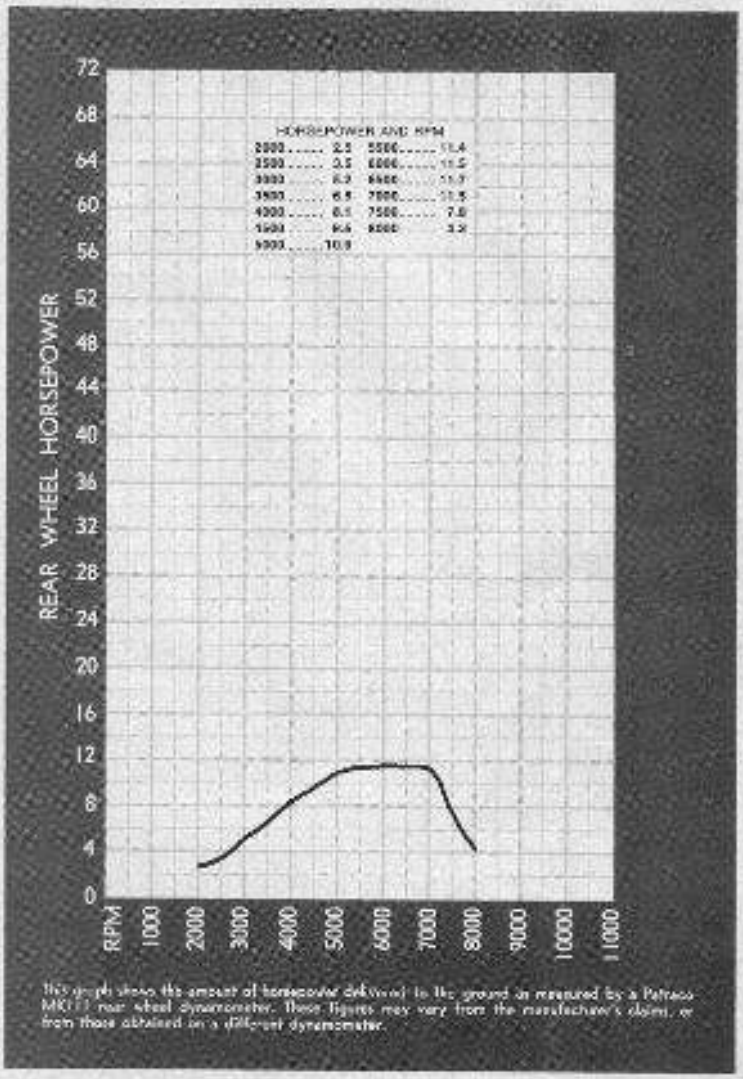
What does matter is the standing position, which is good. Some riders may want slightly higher handlebars, but that's largely a matter of personal preference. If you're not a trials rider, several hours in the standing position will make your neck and lower back sore, but as trials bikes go the position is pretty much standard.

We usually don't make a lot of noise about handgrips, but whoever is responsible for the KT-250's grips *really* missed

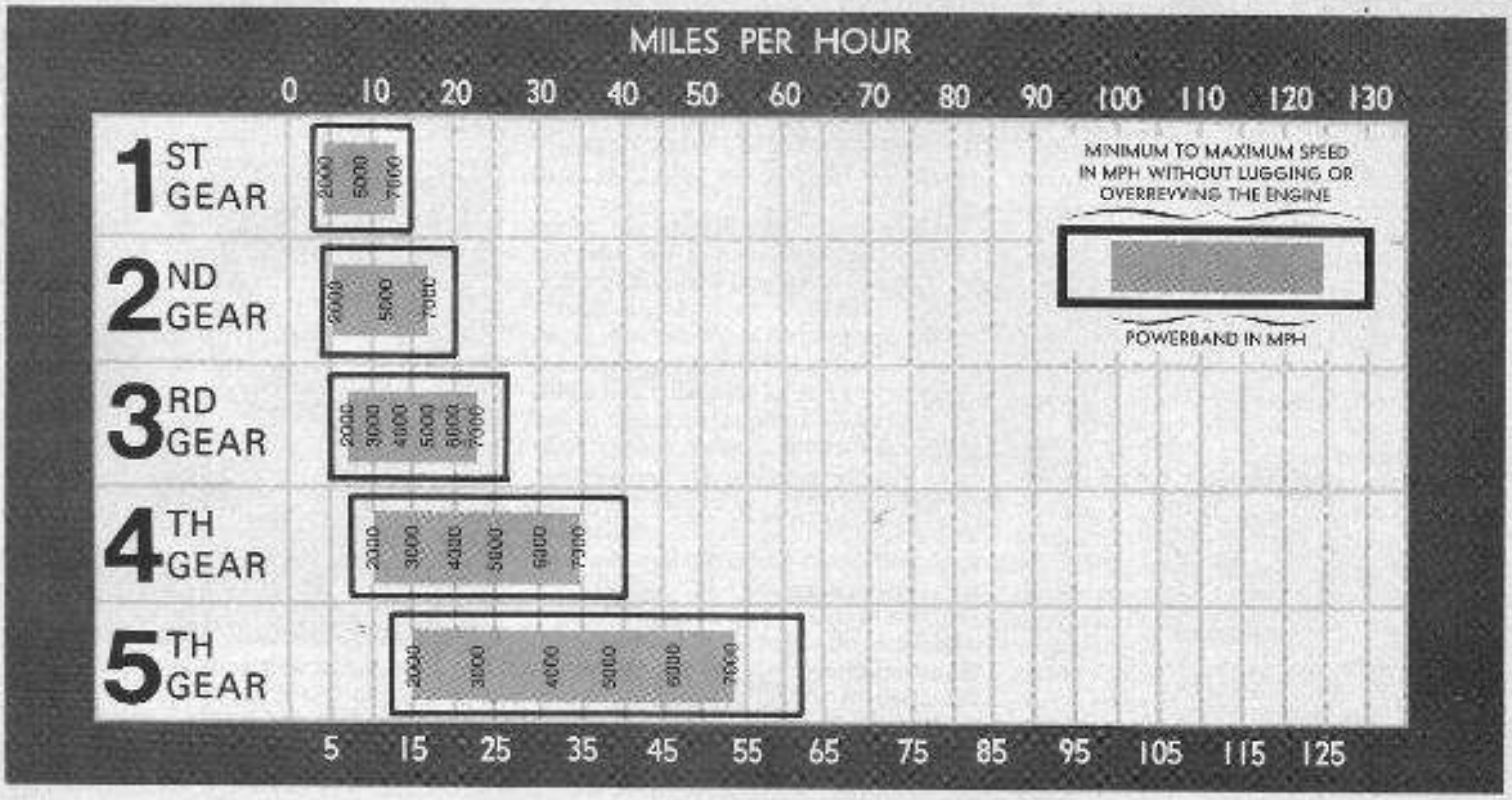
# KAWASAKI KT-250

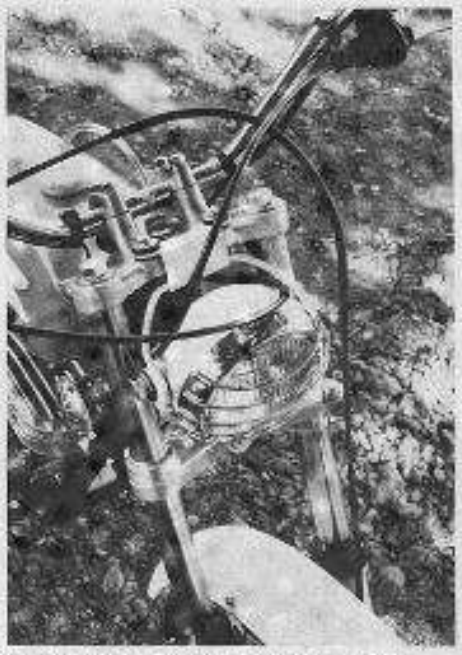



This graph shows the amount of rear wheel torque available at any speed, at any rpm, and in any gear. Maximum acceleration will be obtained by shifting gears at the points where the consecutive lines intersect.



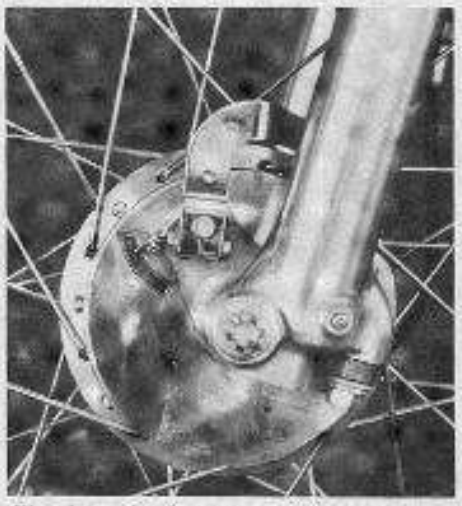

This graph shows the amount of horsepower delivered to the ground as measured by a Petrocs MK111 rear wheel dynamometer. These figures may vary from the manufacturer's claims, or from those obtained on a different dynamometer.





The control cables are much too long, causing them to snag frequently on bushes or tree branches.

The stock handgrips were so hard and sharp that we had to cover them with duct tape before we could ride all day without getting blisters or wearing holes in our gloves.



The front brake arm is cleverly designed so that it is not vulnerable. This setup also allows the front brake cable to be routed behind the left fork leg.

where it would be less vulnerable. At the very least, the method of retaining the tensioner should be improved.

We had another complaint, but it dealt with a design oversight, not a reliability problem. Kawasaki was a little generous with the control cables, and we frequently snagged them on branches or heavy brush. Ideally, the cables on a trialer should protrude as little as possible, but the KT-250's cables were a whole lot longer than they had to be.

With the exception of the chain tensioner loss, our KT-250 was dead reliable. We never changed the plug, we adjusted the chain only once, and we adjusted the cables just for the exercise; they really didn't need adjusting. The bike is a simple, uncluttered machine, so routine maintenance and repairs can be carried out quickly and easily.

**SUMMARY AND CONCLUSION:** The Kawasaki KT-250 has a typical trials-like engine which delivers good power and torque for trials riding, but with a slight shortage of flywheel inertia. That shortage helps the performance in one area, but hurts it in several others. The gearbox ratios are just right for trials, but less than ideal for trail riding.

The handling is very quick and the bike is very maneuverable, which helps it to perform its trials duties quite well. The quickness is not especially confidence-inspiring at high speed on rough or sandy terrain, but that's a concession needed to allow the bike to work well in trials sections.

The stand-up riding position will please most trials riders, and sitting down is just as uncomfortable as on most specialized trials bikes. The suspension and brakes work very nicely, and the apparent reliability should keep you out of the dealer's service department.

In our opinion the KT-250 is the best of the Japanese trialers. If the rider can cope with the flywheel situation, the Kawasaki could come pretty close to matching the Spanish machines. But only pretty close. Trials is a sport of microscopic differences—a game of split hairs and subtle movements—a continual exchange of immeasurable inputs and infinitesimal reactions between a motorcycle and its rider. So the tiny differences between this bike and a Spanish trialer really amount to a large discrepancy that could mean an extra dab or two along the way.

Kawasaki has no reason to feel shamed. The Spaniards have been building trials bikes for a long time and their machines reflect many years of practical experience in the field. Even so, we bet they would have liked their very first effort to have been as good as the KT-250. **CG**