photography by Jaydie Putterman

Handling, braking and acceleration is what the RD 350 is all about. It certainly takes top honors in our judgment as the best 350 street play-racer. Give it a set of clip-ons and the right tires and you can stay with anybody. Top speed is up considerably this year to 106 mph.

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YAMAHA RD 350 1973

Yamaha plays effective one-upsmanship *without* resorting to extra sparkplugs and an electric starter

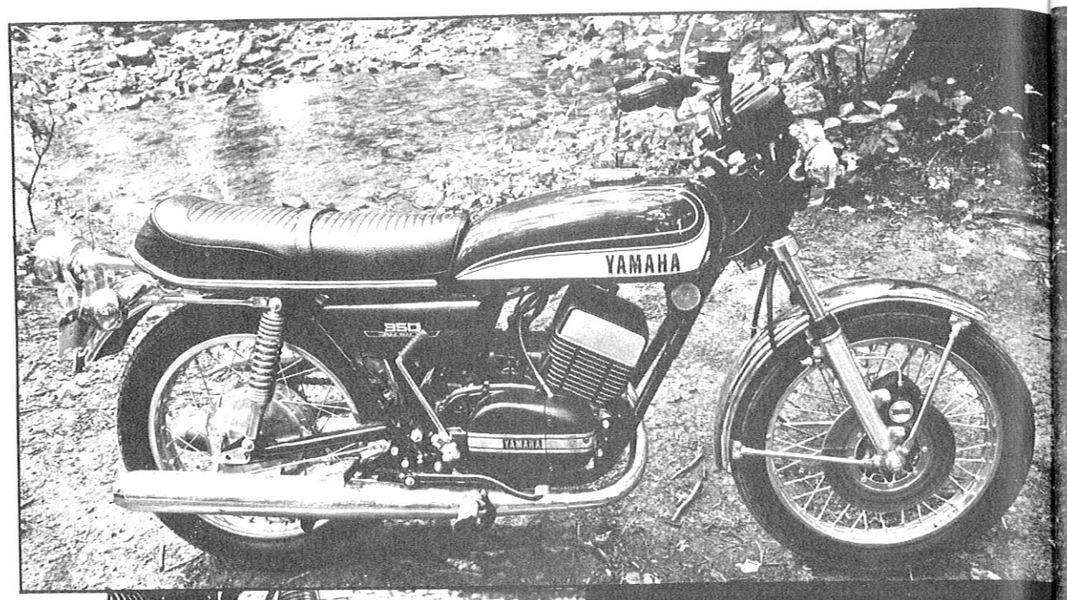
■For a long time the 350 class motorcycles were in a class by themselves. They have been the almost-big bikes, with more performance and higher cruising speeds than the 250's but without the effortless acceleration and hill-climbing ability of the big-inchers. The reason for the creation and perpetualization of this intermediate size is money: manufacturers found they could offer quite a bit more performance at this displacement without a great price increase over the 250's. Today, with the advent of high-priced, sophisticated designs in the large-displacement classes, the 350 class is flourishing more than ever.

The latest offering from Yamaha in that class is an indication that, because of considerable attention given this intermediate size, the middle-displacement bikes are getting closer and closer to the big bikes in performance. The new RD-350 we tested is capable of cracking through the ¼-mile timing lights at a pace that would put to shame most 650 four-strokes being produced today.

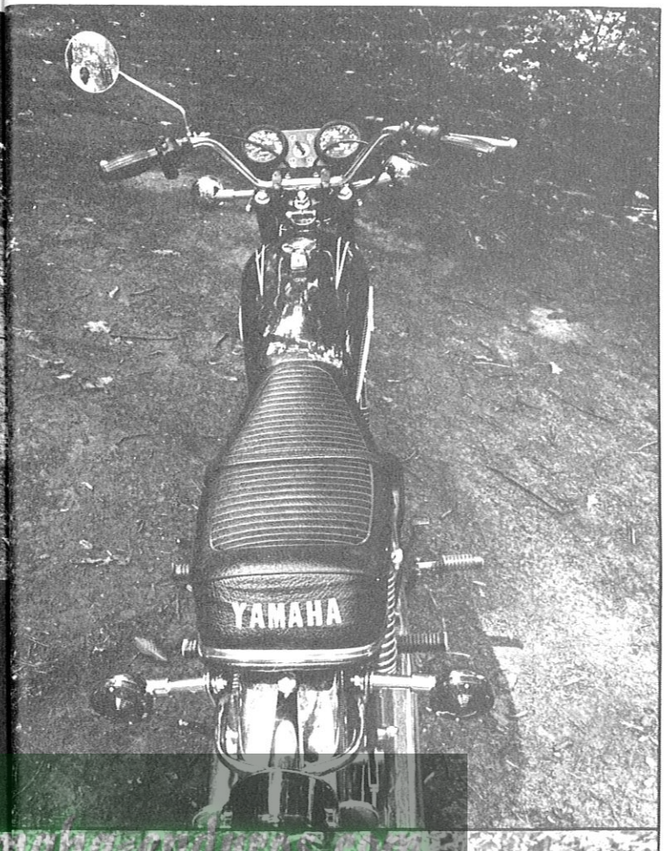
The RD 350 not only has great acceleration but outstanding braking as well. With the RD 350 comes a big disc brake at the front that has all the stopping power of the previous R 5's very good double-leading-shoe brake, with the added benefit of exceptional controlability and "feel." Throughout our testing the disc hauled the RD 350 down from high speeds repeatedly without fade. The only flaw in the new stopper is an audible squeal that occurs mostly at slow speeds of 10 mph or less.

The RD 350's stress on performance makes it somewhat of an oddity compared to its competitors. The other "big three" Japanese manufacturers have filled that displacement slot with three and four cylinder machines that boast the latest in comfort and convenience, achieved mainly by the super-smoothness of a well-balanced multi-cylinder engine. They are acclaimed for their sophistication and class, but when it comes to accelerating away from a stoplight, pulling out from a freeway on-ramp or shooting up a steep mountain road, they leave the rider feeling more than a bit impatient. Yamaha has not gone for the opulence of a 350 two-stroke multi perhaps because they knew there would be no progress in terms of performance and that in the end the buyer would have to cough up an extra few hundred just for knowing he had the latest, most complicated design the manufacturers could offer. What Yamaha has been offering out on the road race courses in the form of their super-fast "giant-slayer" 350's they've now put on the road — a strictly performance machine capable of outrunning most bikes twice its size.

YAMAHA 1973 RD 350



Much of the styling for 1973 is highlighted by a black matte finish used in several places, most noticeably on the carbs. Also notice plastic, glue-on speed fins stuck to either side panel. The bike could do without them.



In design the RD 350 is a straight-forward two-stroke twin, except for this year's addition of reed valves. Perhaps they figure what reeds did for their motocrossers they can do for their street bikes, too. They weren't wrong. The new RD 350's like the DT-2 reed valve dirt bike, is much faster than its piston-port counterpart. The name Yamaha slaps on their reed intake systems is "torque induction," which, I suppose, is to help convey the generally held notion that compared to the psiton porting, reeds give the engine much more low-rpm power (commonly referred to by super-enthusiasts as "torque"). If the new reeds on the RD 350 induced any more "torque" than the R5C produced, we didn't notice it. The RD 350 has a bunch more on the top end but the low end has remained the same. Mid-range unfortunately has suffered somewhat in the process and our RD 350 had a definite flat spot between 4,000 and 6,000 rpm. The story is that you can't get something for nothing. The design of the reed systems turns out to be much like that of a camshaft. There are high-rpm and low rpm reeds just like there are high-rpm and low-rpm cams, the effective range of the reeds being determined by the tension of the reed material. Stiff reeds give you good valve control at high rpm but are restrictive at the low end, while looser reeds work easily at low rpm but "float" at the high end. Yamaha's reeds are evidently on the stiff side; power comes on at 6,000 and gets stronger as the peak at 8,500 is reached. This might not seem like much of a spread, and it isn't, but the new super-slick 6-speed gearbox makes the narrow power band much easier to accept.

The fact that it's still only a twin combined with the new reed valves helped our RD 350 to get very good gas and oil mileage. You can expect 50 mpg out on the freeway and seldom will there be much smoke coming from your exhaust. Another interesting thing about the twin-versus-multi comparison is that because of Yamaha's short stroke design (64 x 54 mm) and its very high (numerically low) top gear piston, speeds are actually less than those of its multi-cylinder counterparts. If that is any indication of potential wear, the RD 350 should last a long time.

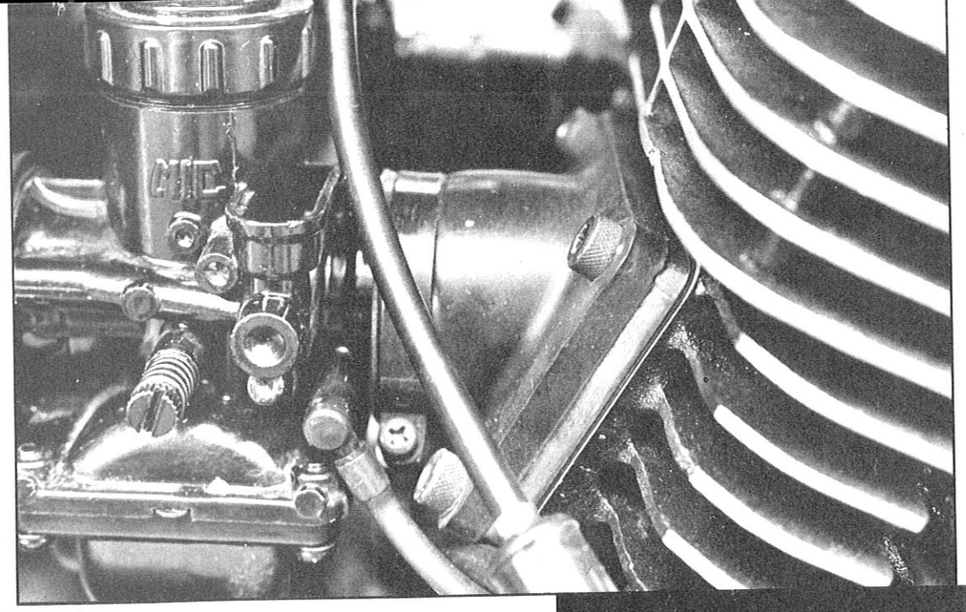
Out on a twisty road you can really appreciate the RD 350. There's no production machine we know that will out-handle it, and if you keep the gutsy twin on the boil the time between corners will be just as impressive as the short time around them. The handling is marked by great stability at all times, and compared to previous Yamaha 350's, there is great improvement in handling over the bumps.

Curiously, the RD 350's very good performance is most obvious when you try **not** to use it. There are some who would choose a good 350 for a long-distance mount, but in a variety of ways the RD 350 lets the scenic cruiser know maintaining an even pace over a hill and dale isn't its forte. Not until the tach is reading 5000 rpm you can be sure that approaching hills and traffic passing situations can be met just by applying additional throttle. Naturally, a gearbox with so many speeds invites shifting, and the RD 350's peaky power makes that invitation a necessity. There are times when you can make a hill by really rapping on the throttle, if you're cruising at 4,500 rpm or so, but the very loud howl coming from the intake tract makes you wish you had downshifted. The RD 350's unwillingness to hold an even pace was most clearly brought home when we were calibrating the speedometer. Our practice is to hold the machine at a constant speed indicated by the speedometer and compare the reading with an electronic device attached to the front wheel. Even on a flat, level surface we had difficulty holding a constant 60 mph. The engine feels very high-strung and reflects this by demanding to be turned either on or off. This peaky power band, coupled with the unwillingness to hold an even speed, is most dramatic when riding two-up. Hills require at least one down-shift, and sometimes as many as three if you're just humming along at 35-40 mph. Also, the suspension is definitely on the stiff side, just right for taking corners over rippled surfaces, or for taking corners over any surface, for that metter. But it's also a suspension that the long-distance tourer won't find very comfortable. Those railroad crossings are especially painful and in most cases the rider resorts to standing on the pegs over the bumpy tracks. This forced, Joel Robert kind of riding looks a bit foolish in traffic.

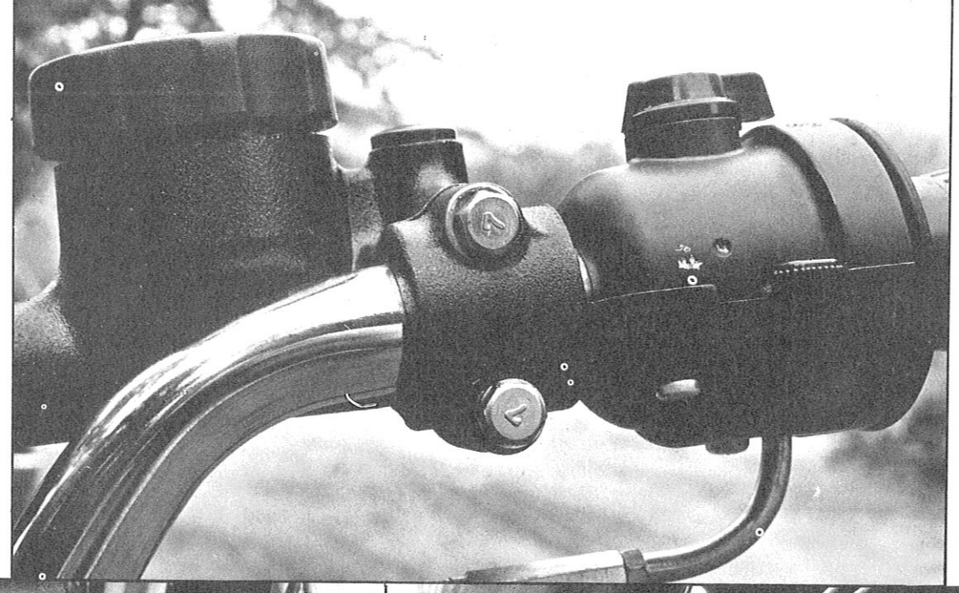
No, we don't think the best place for the RD 350 is on the turnpike, and if any of the aforementioned drawbacks don't bother you, the vibration will. Between 4,500 and 6,000 rpm, engine vibration is noticeable but bearable. Above that, it's very uncomfortable. This translates into a maximum comfortable cruising speed of about 60 mph in top gear, which is a tad below what the interstate rider would like. Five years ago, many of us would have described the RD 350 as "electric-motor smooth," but today, with the silky-smooth competition, we are forced to re-evaluate our standards.

If performance is your bag, though, the RD-350 is right up your alley. We can safely say it's the hottest production 350 yet. It'll cut the quarter very close to 14 seconds flat in capable hands, and buzz past the 100-mph mark as if it really wants to. The reed valves account for some of the superlative speed, the new six-speed gearbox for the rest. Coming off a standing start you must be careful feeding in the clutch at high-rpm; wheelies are easy. First gear is very low, and the first few times you try maximum performance runs you'll find the bike overrevved somewhere around 9,000 rpm before you hit second. The best possible thing to do is shift out of first a bit early and really hang on to second. Shifting at 8,500 puts you into the next gear at about 7,500. When you're wound out in third, not more than five seconds later and a glance at the speedo will show you 60 mph as you catch fourth,

YAMAHA 1973 RD 350



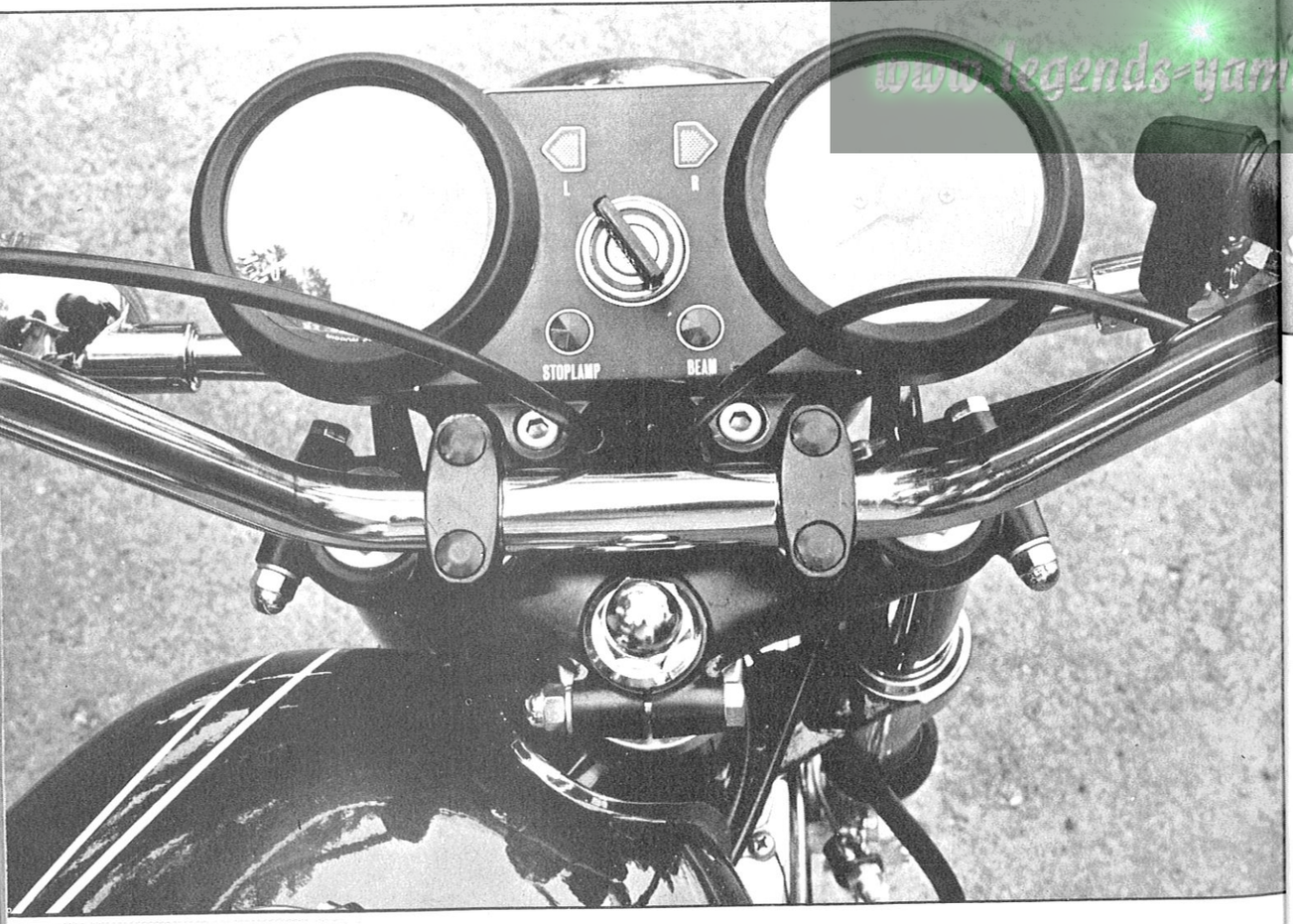
Reed valves give the RD 350 a very high, but peaky power output. The six-speed gearbox is well able to keep the twin on the pipe. An added convenience is great gas mileage: bike now gets between 45 and 50 mpg.

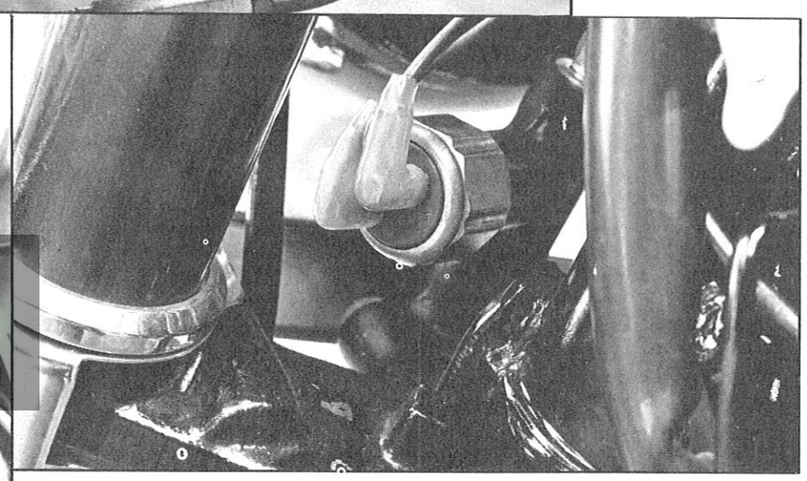


Switches on the right side of the bar accommodate the headlamp and an ignition "kill."

Stoplamp switch on the front brake is along the hydraulic line, a fool-proof setup.

New ignition panel holds idiot lights for the turn signals, stoplight indication and high beam. Of course, the ignition switch is up there too where it belongs.





Disc at the front has both power and control, giving the rider complete confidence under slippery conditions.

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and then fifth, then sixth. You can hit 80 mph in just a shade over 10 seconds; that's really blinding speed for a street 350.

For all its ferocious energy at high speed, the RD 350 is utterly tranquil when starting and at idle. From cold, the bike rarely required more than two prods to start up. The proper starting procedure is choke on, throttle off and kick. Once warm the RD 350 is as easy a starter as there is. The engine never forces you to give it a full run-through with the kick starter; it immediately starts off with the orbit of the first piston to pass compression. The engine starts so ridiculously easy when warm that we had the habit of boggling the minds of disbelieving gas station attendents by reaching down and starting the engine by hand!

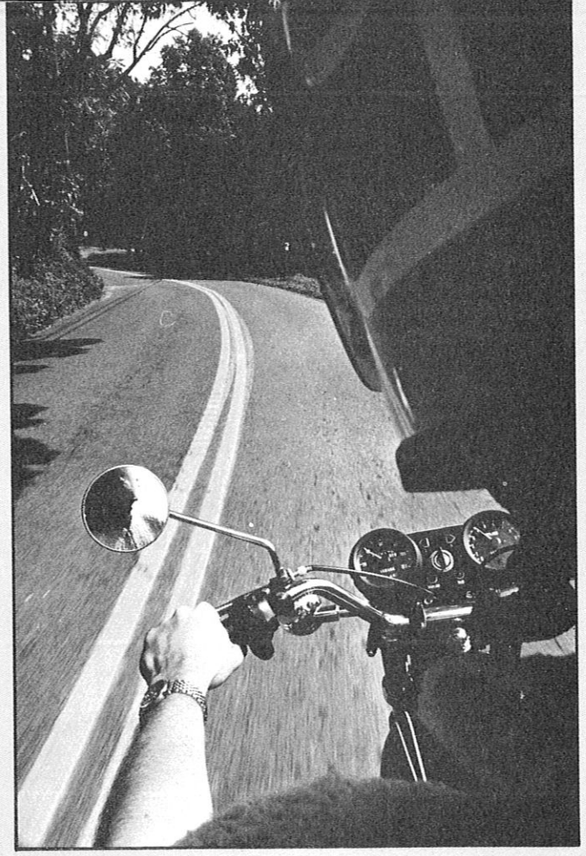
With the RD 350 you get practically every conceivable extra, save for an electric starter which really is unnecessary. New this year is extra instrumentation on a matte black panel which stretches between the tach and the speedo. There you'll find four warning lights and the ignition switch. The lights indicate both left and right turn signals individually, high beam and the rear stoplight. A double-position on-off-on kill switch is located by the right twist, easily within thumbs reach in an emergency. Also on that side of the bar is the on-off switch for the headlamp, which also can be operated without removing your hand from the grip. A blink of high beam makes a good signal for other traffic when the rather feeble horn fails to attract their attention. On the left side of the handlebars is the turn signal switch.

Other nice touches include a locking gas cap, which absolutely refuses to leak, and the flip-up seat, which also locks. Under the seat there is provision for hooking up your helmet, so that when the seat is in the down position and locked, your helmet is secured also. The fourth and last lock on the machine locks the steerinhead. All four locks, praise be, can be actuated by the same key.

The colors this year are black and candy-apple red. While the finish and evenness of the paint drew much praise, the chrome work is still a bit dull and it'll take an extra-heavy coat of wax to protect against corrosion. The matte black finish both on the instrument cluster and on the engine side cases was showing signs of wear. We suspect, though, that worn areas can easily be touched up with some flat black spray paint.

Even though the RD 350 is pretty enough to grab plenty of attention, the type of rider for whom the machine was intended will be spending most of his time unwinding a twisty black country road rather than cruising around town. And as a production street racer there's nothing in its class to touch it.

With the broadening of the scope of cycling we are beginning to see not only different cycles for different terrain, but also different

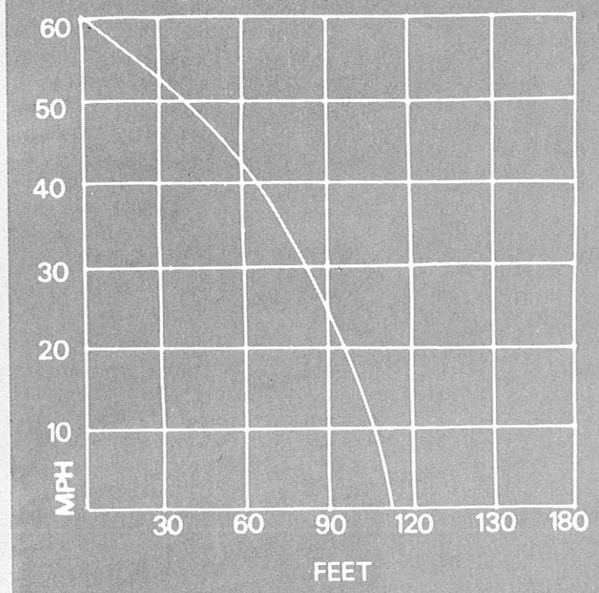


You can lean very hard into corners without fear of grounding; there seems to be a bit more clearance this year where it counts.

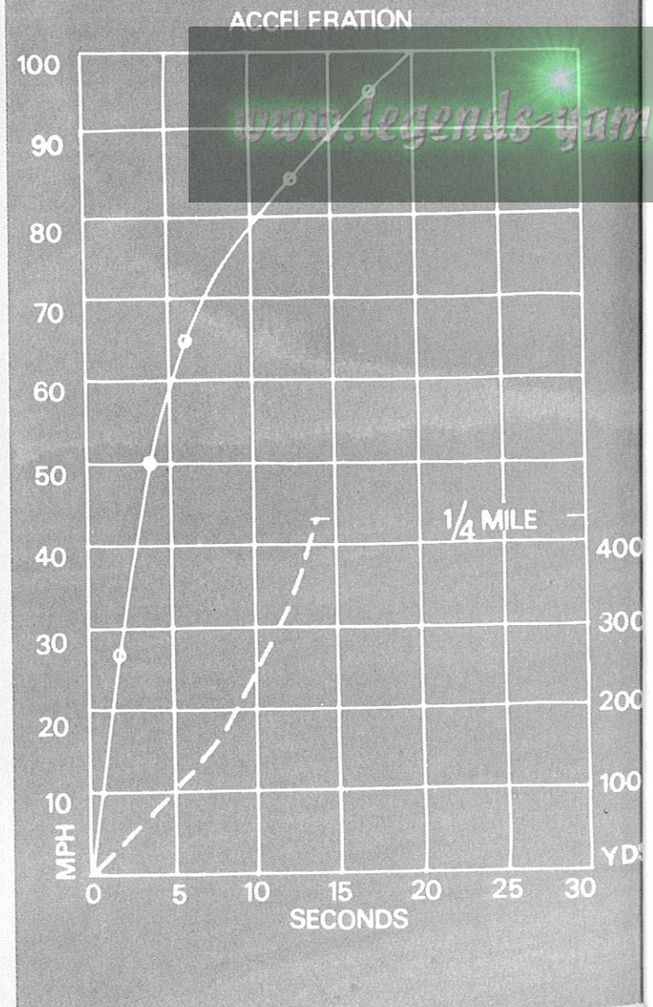
YAMAHA 1973 RD 350

styles of machines within those categories. The four-wheeled street machines have a luxury division, a sports division, an intermediate class, a compact class, and so on, and all are viable utility vehicles. The RD 350 would be the super sports entry in the 350 class, and most of its competition would be luxury liners. Not that we're knocking the likes of the super-smooth Honda 350 Four (tested elsewhere in this issue) because that machine certainly has its place. But if you're the type that likes to shift gears and take corners fast more than you like touring on a higher-priced machine, the RD 350 is your cup of tea. •

BRAKING PERFORMANCE



ACCELERATION



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YAMAHA

Price ..... N.A.
Engine # 351-00005
Warranty ..... 3 months/3,000 miles
Distributor ..... Yamaha Int. Corp., Bueno Park, Ca.
Resale value after one year ..... N.A.

ENGINE

Type	reed valve 2-stroke twin
Displacement	347 cc
Bore & Stroke	64 x 54 mm
BHP @ rpm	NA
Advertised c.r.	6.8:1
Actual c.r.	6.8:1
Valve area (sq. in.)	
intake	4.20
transfer	3.40
exhaust	3.84
Con rod/stroke	2.12
Carburetion	(2) 28 mm Mikuni
Overall gear ratios	
First	19.86
Second	12.74
Third	9.45
Fourth	7.46
Fifth	6.37
Sixth	5.63

RUNNING GEAR

Frame	tubular steel
Rake & trail	27.5° & 4.1 inches
Suspension	hydraulic
Tires	
front	3.00 by 18-inch
rear	3.50 by 18-inch
Brakes	
front	8.5-inch hydraulic disc
rear	180 x 35 mm s.l.s. drum
Electrics	12-V battery/coil ignition

GROSS MEASUREMENTS

Weight	342 lbs. (wet)
Wheelbase	53 inches
Seat height	31 inches
Ground clearance	7.5 inches
Handlebar width	30 inches
Fuel capacity	3.2 gallons

COMFORT RATING

1. Vibration	7
2. Suspension	7
3. Noise level	6
4. Seat	8
5. Handlebars	9
6. Start mech:	9
7. Controls	9
8. Stand	9
9. Shift mech:	10
10. Switches and instr:	8
Overall rating	82

PERFORMANCE

¼ mile	14.18 sec @ 87.50 mph
0 to 60 mph	5.2 sec.
braking dist. from 60 mph	109 feet

SUMMARY

Everything the ideal production 350 street racer should be; it goes, stops, and handles better than the competition. A very high overall top gear ratio is great for touring and longevity. Only drawback is vibration above 60 mph.

GLOSSARY

c.r.—compression ratio
D.N.E.—does not exist
N.O.—not obtained
N.A.—not available
Overall gear ratio—engine vs. rear-wheel speed
s.l.s.—single leading shoe
d.l.s.—double leading shoe
Comfort rating—maximum of 100
in.—intake
ex.—exhaust
trans.—transfer
Con rod/stroke—the connecting rod length divided by the length of the stroke