

CYCLE WORLD

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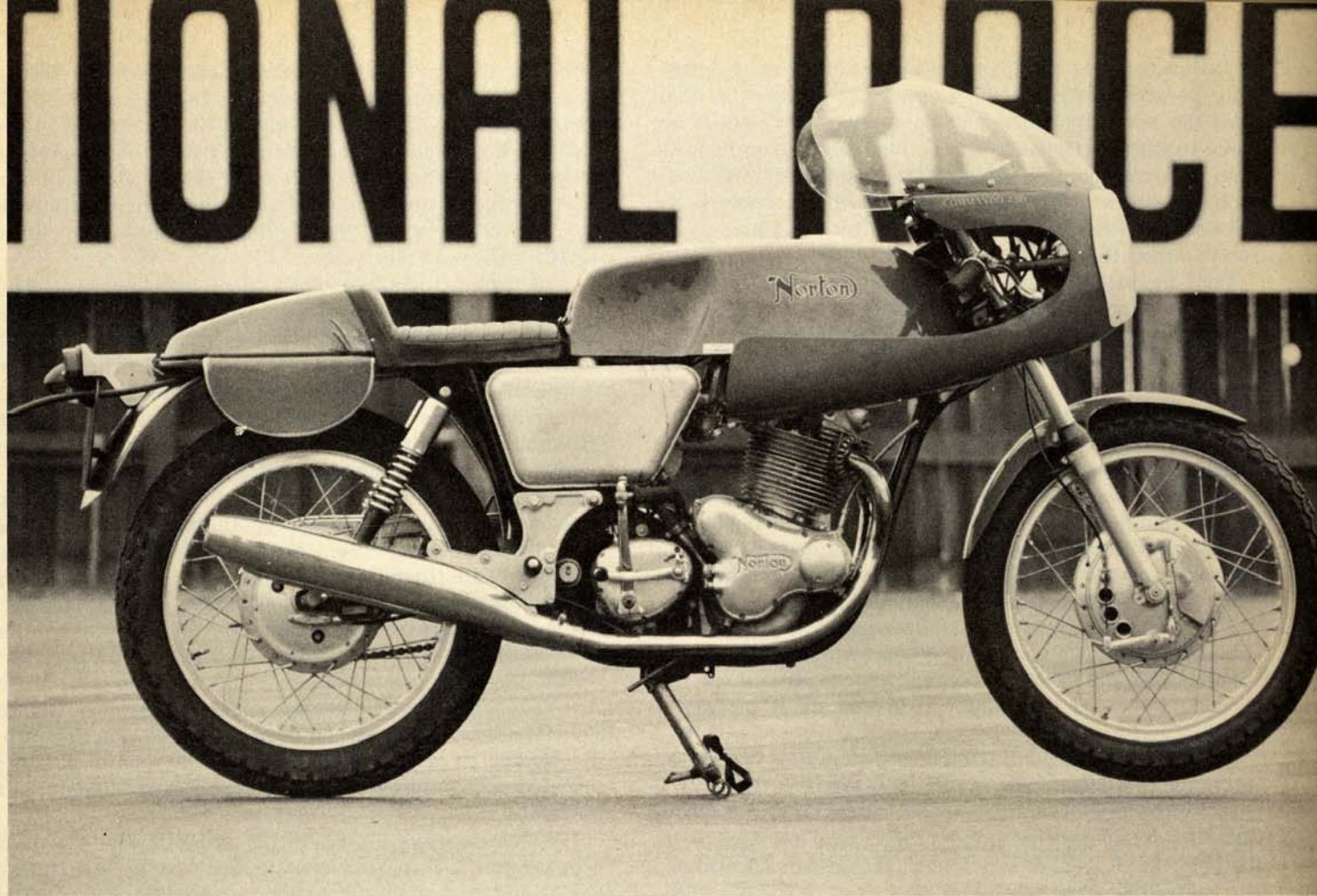
AMERICA'S LEADING MOTORCYCLE ENTHUSIASTS' PUBLICATION

TRACK TEST: 130-MPH NORTON 750!

ROAD TEST: HONDA SL350 Is It Really A Dirt Machine?

THE WHOLE TRUTH BEHIND HOLLYWOOD'S FIRST MOTORCYCLE RACING MOVIE.

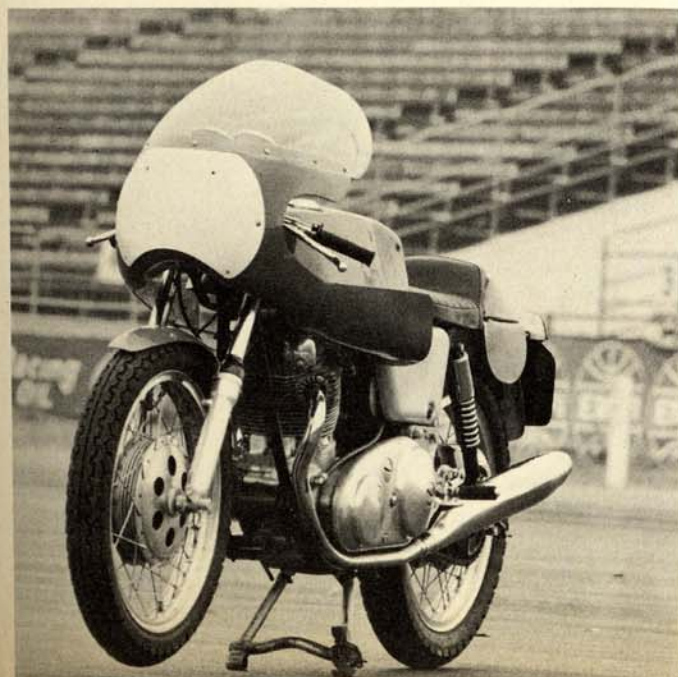




NORTON COMMANDO PRODUCTION RACER

We Sample A 130-mph Speedster, Try Ourselves, And
Track-Test Two Tracks.

CYCLE WORLD
ROAD TEST



RARE IS THE ROAD RIDER who has not, regardless of what he is riding, twisted the throttle just a little harder than is necessary to get from Point A to Point B. In every rider, there's a little bit of a racer. The road, fraught with perils real and imaginary, public and private, becomes a temptress at every curve.

That's what riding is all about. Not the fact that you get there, but how you get there. Some guys get quite good at it. Those that aren't, think they are. Even the squid who has been on a motorcycle for only three days of his entire life just *knows* he is the fastest thing that ever came 'round a bend.

Only the race track can give a man proper perspective, with a good dose of exhilaration thrown in. It's unique—the reason why the CYCLE WORLD staff jumps at the chance to rent a track and go play racing with a properly fitted machine. It's an absolute ball, all of it tax deductible.

Take away the roadside grit, the greasy, traveled surface, the imagined cop in every dark cranny, the family sedan coming at you, straddling the center line.

Take away the speed limit, which is always in the back of your mind even when you exceed it. Take away the yellow

line. Both sides of the road are yours, not just the one lane. Blind corners are free for the shooting. Going fast is all up to you, the laws of physics, and how well your "huevos" are wired to the throttle hand. With nothing extraneous to impede your progress, about 98 percent of the action will be above 60 mph, not below it. The world goes by much faster now, as the physical penalties for sloppiness go up by the square of the speed, rather than in direct proportion...

Cool morning fog was just beginning to clear at Orange County International Raceway. A 745-cc Norton Commando sat on its stand in the middle of the tower bend. Click, crank. The photographer was using lots of film, very carefully. We were getting impatient. Brian Slark of Norton-Villiers quipped, "He must have shares in Eastman-Kodak."

CYCLE WORLD has already tested the original Commando (Sept. 1968), but this one is a bit different. It is an FIM-style production racer. The engine, frame and rolling gear must be over-the-counter items, although certain engine components will usually be hotter than standard fare. It must be more or less legal for the street, so it has silencers and lights. For safety, and comfortable operation at high speeds, the machine may have rear-set pegs and seat, large capacity gas tank, racing tires and a partial fairing. The gearing, internal and overall, may be changed to suit the circuit. A typical race for this machine would be the 750-cc production TT at the Isle of Man.

It is a Commando, but it is not a Commando. It could be ridden on the street, but to do so would be a waste. The engine varies little from standard, but has been assembled with "tlc"—tender loving care. Good old tlc, and a few appropriate parts. That's all it takes to introduce the rider to a demanding and competitive sport.

Norton's production racer is ideally suited to learning this pastime, because of its flexible nature. The long-stroke (73 by 89 mm) vertical Twin delivers its torque in a broad power band, with a claimed peak of 66 bhp at a modest 7000 rpm, up 6 bhp at 6800 rpm. There is no embarrassment if you forget to downshift. Turn on the gas and the bike levers itself away at anything above 3000 rpm.

Surprisingly little has to be done to a machine to make it run fast. In the case of the production racer, all the parts

necessary are on Norton's shelf. According to the Norton-Villiers distributors on the West Coast, they will be made available to U.S. buyers in early 1970. Alterations to the standard Commando engine consist of: raising the compression ratio from 8.9:1 to 10.4:1 with a pair of new pistons, the flat tops of which protrude into a head with recessed squish area; larger valves; heavy duty valve springs; lightened and polished rocker arms; and a sports cam.

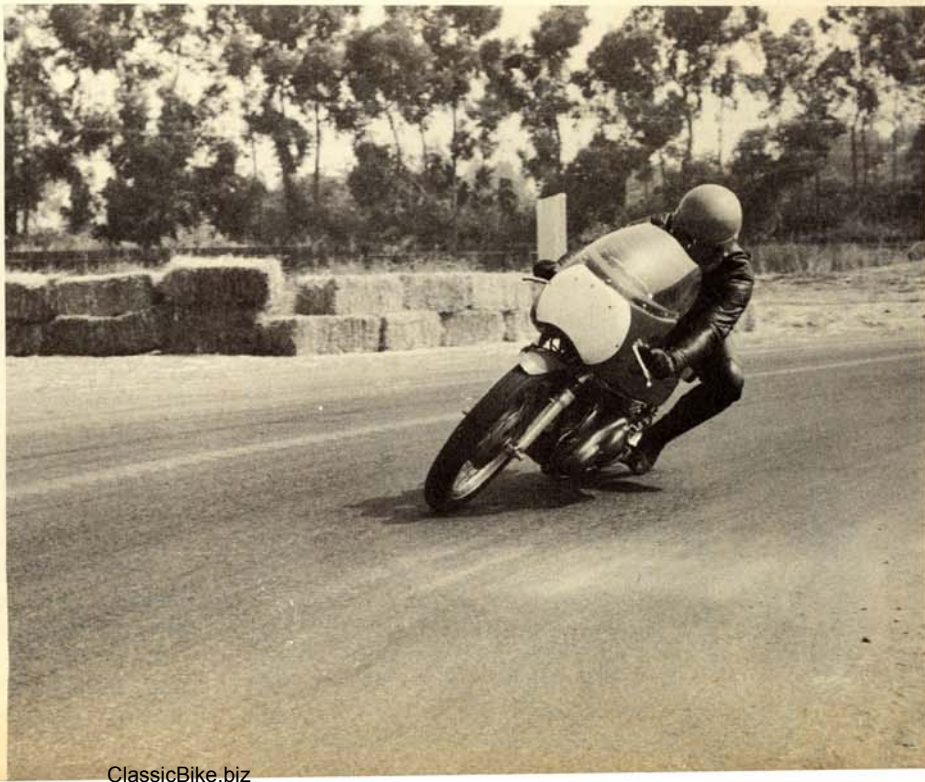
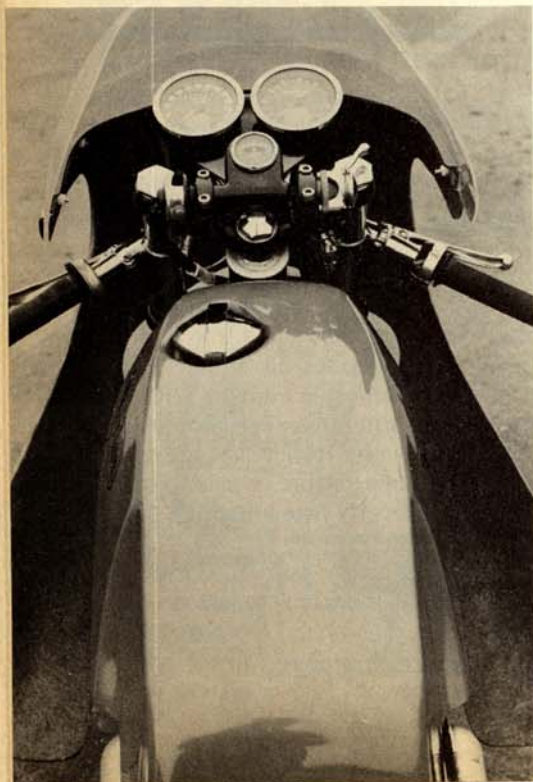
Cam timing is moderate. Inlet opens 44.5 (precise fellows, those British!) degrees btc, closes 63.4 degrees abc. Duration is 288 degrees. Exhaust opens at 63 degrees bbc, closes at 28 degrees atc; resulting duration, 271 degrees. The duration figures are comparable with the run-of-the-mill big bore sports roadsters, such as the Triumph 650 or the BSA Three. In practical terms, this cam is perfectly adaptable to street operation and doesn't even make the engine go "rump-rump."

The rest of engine and transmission remains unchanged. This includes pushrods and tappets. The exhaust system is the same one on the street bike, complete with effective silencers. The eight-plate (four drive, four driven) diaphragm clutch is unmodified and takes the extra "pressure" without a whimper. Carburetion is also standard—two 30-mm Amal Concentrics fitted with 240 main jets for OCIR, which is near sea level.

The racer fired immediately on a run-and-bump start. In the first few tuning laps, it became quite evident that Orange County was much too small a course to the Norton Commando. We had on our hands a machine that wanted to do more than 125 mph, but lacked enough straightaway to find out just how *much* more.

Drag racing plays the major role at OCIR, and the AFM people who run there from time to time must make do with a layout none too conducive to good road racing. Running the Commando counterclockwise from the tower, you negotiate a half-mile straightaway at about 120 mph, then haul down in hurried fashion for a 40-mph hairpin.

It was at this point that some of the stock running gear components began to complain. The standard 8-in. double leading shoe front brake had racing linings installed, but grabbed mercilessly and then proceeded to fade in the next few laps, reducing stopping power to an uncompetitive level. Careful installation could cure some of this problem. The rear



brake was not so grabby, but indiscreet foot pressure, combined with soft rear suspension (and damper travel inhibited by the forward cant of the units), could produce rear wheel patter. Handily, if you overshoot the turn, which we did once, Orange County has a nice, long sandbox for you to play in.

If you make it through the turn, entering wide to avoid running across a false apex with resultant wide and sloppy exit, the best part of the course follows. Accelerating all the while, you bear to the left side of the pavement and set up for a gradual 30-degree right-hander, feeding to a short straight and an identical 30-degree left-hander. This is a classic Keppel Gate, Isle of Man, situation. Use the whole road through the right-hander and you are on the wrong line to get the best speed exiting from the left-hander—an important point as higher speed on the following straightaway will net you better lap times.

The basically good Commando handling, the compliment of a road racing layout and an excellent, rigid double cradle frame and wide swinging arm mounting, showed itself well here. It is a heavy machine and has to be cranked hard, but it tracked true through this S-bend, held to line well, and showed no sign of front end wobble, in spite of speed through the latter bend ranging from 100 to 105 mph.

The rest of the course is straightforward and dull. A brief straight, a quick jog left and then right moving the rider about 20 feet over from his original path down the back straight. Then a sweeping left-hand turn through an oil-impregnated

parking lot back to the tower and the front straight. Basically, this adds up to a horsepower course, with only two turns requiring braking, and one S-Bend requiring impeccable handling. A mere hors d'oeuvre. But our appetites were whetted, so we moved to the tree...

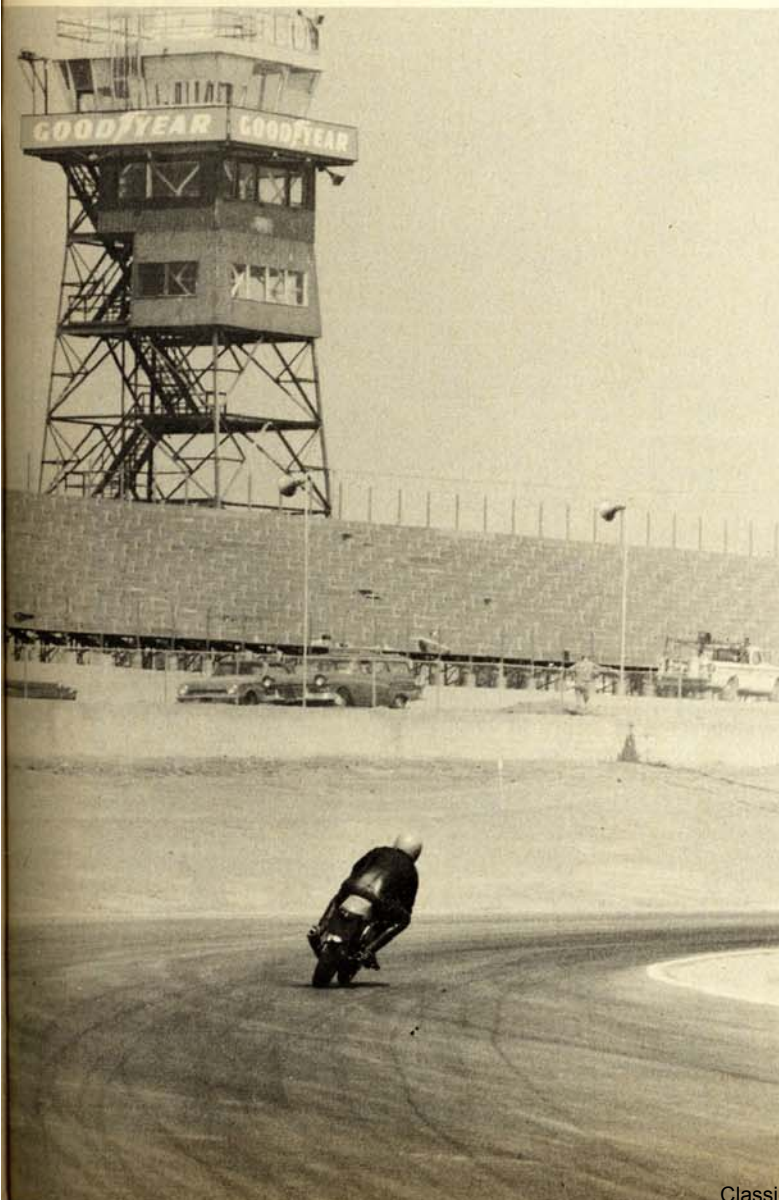
Riverside yawns at you. Turns disappear into the yellow haze. They are sweeping and wide. The back straight seems endless, the high speeds insignificant. Rider and machine—a germ swimming trancelike across an uncaring set of tonsils. A true International Raceway.

First on the agenda was a top speed run, utilizing the entire back straight. It runs for almost a mile, adding impetus with a downward dip onto a certified flat where the times are measured. After a switch to 230 main jets to compensate for the 1500-foot altitude, the racer ran through at 131.02 mph at 6500 rpm, pulling a 3.83 top gear. The Commando is thus the fastest “production” machine ever tested by CYCLE WORLD. At this speed, surging in the carburetor float chambers became evident, probably induced by a sympathetic engine vibration working the floats up and down, alternately causing too much or too little fuel to enter the float chamber. Isolating the carburetors from vibration on rubber extensions would probably correct the surge and result in a few mph increase.

A 130-mph machine is an excellent match for the Riverside circuit, as it reaches speeds that require the rider to make full use of the wide paving. The entire course had just undergone complete renovation at the time of our visit, with new paving, a redesigned Turn 9, and new stands for 10,000 people at the starting straight and in the famous Riverside S-bends. The only racers to run on it so far were Dan Gurney, in a Trans-Am sedan, and a gaggle of Formula III drivers, so the pavement was fresh and clean. Track manager Dave Berg alerted the land-mover jockeys to keep an eye out for our little red speedster and graciously told us to let her rip.

Gathering speed through the right-hand 450-foot radius Turn 9, which was widened and enlarged by adding a dogleg to the left off the back straight, the Norton is rock steady, leaned well over and beginning to drift at about 80 mph. The triangular section K81s were just getting scrubbed in and seemed to offer much more feel at Riverside than they did at Orange County.

After Turn 9, a thousand-foot straight slings the machine at well over 100 mph in fourth gear towards Turn 1, a scary, slightly uphill left-hander—scary because you can't see where it goes. Naturally, it is approached from the right-hand side of the straight. You peel off late, but at full throttle. There's a bump near the apex of this turn that lightens the bike at about 110 mph and gives a good reading of the suspension.



The front end of the Commando tracked perfectly over the rise, and the rear, with the spongy springing, reported back in fairly good shape, yielding only a small oscillation that ceased quickly.

Then on to a short straight, brake to about 80 for a 30-degree right, the first turn in the Esses. The lack of sure braking was a deterrent here, as the turn may be banzaied much faster than first appears possible. The best riders go through fast enough to create an extra turn requiring a leftward flick of the machine before going right for a quickly following Turn 3.


The 420-lb. weight of the production racer is somewhat of a disadvantage in the Esses, as it resists the nine, deft flicking back-and-forth movements required from the entry of Turn 2 to the entry of the slow 180-degree Turn 6. That last turn is the one most likely to cause trouble to bikes with marginal ground clearance as it slams the decelerating machine sharply uphill, compressing suspension just about the time you must shove the bike over hard to the right at 60 mph. With no centerstand, the Commando passed this test well, the ground working against the rider's toe like a belt sander, foot pointed down on the pegs.

Then follows another third gear straight to Turn 7, the hairiest spot on the 2.55-mile "short" course used for motorcycle racing. The world gets very large and the rider very insignificant here, as the machine swoops downward and then back upward to a distant turn, invisible behind the crest of a hill. The rider must calculate his shut-off points precisely from the 4-3-2-1 markers on the shoulder. Just before the crest, a set of violent squiggles painted on the pavement reminds late-brakers that "it's all over, jack." Behind the crest awaits a steep drop and a slow first-gear left-hander, which becomes an adverse camber, because the line cuts across from the extreme right at the crest to an apex at the bottom of the hill.

Approaching Turn 7 requires two neat downshifts and hairline full-force braking. Not having the latter, we would have preferred backshifts on the Commando to be made with a positive downward jab of the foot, rather than the old-style upward toe pull. Apparently, someone who was used to the old pattern installed a reversed cam plate in the gearbox. Fortunately, reversing the lever to reach a rear-set peg on a stock Commando gearbox (which shifts one-up-three-down in normal position), makes it shift in the more preferable one-down-three-up pattern.

After a wide approach to Turn 7-A (Turn 8 is part of the long 3.3-mile big car course), you enter the back straight halfway in the middle, with a 2170-ft. run to Turn 9. Approaching peak revs in fourth gear, the rider has time to listen to the engine. The feeling on the Commando is fantastically smooth for a big Twin, as the rubber engine mounting isolates the engine, preventing vibration from getting through to the frame, bars, seat and pegs. Hence the name "isolastic." Displacement of 750 cc is the present practice maximum for a vertical Twin, and it is nearly impossible to balance it to run smoothly at all speeds. Norton found the answer: if you can't stop it from shaking, put it in quarantine.

Finally comes the rapid right-hand Turn 9, entered by bearing left through a dogleg at about 115 to 120 mph. Easy stuff on the Commando. The dogleg is hardly a turn as it is extremely wide and allows plenty of room for error. Then another 1000 feet to Turn 9, shift down to third and get ready to peel off at the "Good Grief!" sign following the distance markers.

Then, confidence inspired by the machine's stability, you are ready to go around again, and again. Only next time, maybe, you'll try the Esses just a little bit harder... 

NORTON PRODUCTION RACER

SPECIFICATIONS

List price	n.a.
Suspension, front	telescopic fork
Suspension, rear	swinging arm
Tire, front	Dunlop K81 3.60-19
Tire, rear	Dunlop K81 4.10-19
Engine, type	ohv vertical Twin
Bore x stroke, in., mm	2.87 x 3.50, 73 x 89
Piston displacement, cu. in., cc	45.5, 745
Carburetion	(2) Amal Concentric 30 mm
Ignition	12V battery-coil
Claimed bhp @ rpm	66 @ 7000
Oil system	gear pump, dry sump
Oil capacity, pt.	6.0
Fuel capacity, U.S. gal.	4.5
Recommended fuel	premium
Starting system	kick, folding crank

POWER TRANSMISSION

Clutch	multi-plate, wet
Primary drive	triplex chain
Final drive	3/8-in. x 5/8-in. chain
Gear ratios, overall: 1	
5th	none
4th	3.83
3rd	4.21
2nd	5.10
1st	8.35

DIMENSIONS

Wheelbase, in.	56.7
Seat height, in.	29.5
Seat width, in.	11.0
Handlebar width, in.	23.0
Footpeg height, in.	12.0
Ground clearance, in.	5.0
Curb weight (w/half-tank fuel), lb.	420
Weight bias, front/rear, percent	46/54

PERFORMANCE

Top speed, mph	131.02 @ 6500 rpm
Piston speed (@7000 rpm), ft./min.	4080

TEST CONDITIONS

Air temperature, degrees F	78
Humidity, percent	60
Wind velocity, mph	none
Strip alignment, relative wind:	

