

■ PROBABLY A LOT of people have pondered the question, "How would you go about building the very best dirt bike ever made?" Few people have done more than ponder, however. It takes a very major commitment to start with a clean sheet of paper and produce saleable new machines. Bombardier Limited, however, a diverse corporation with some \$35 million in fixed assets, has what it takes to make such a commitment.

## Cycle World Road Test

Bombardier attempted to ease into the motorcycle market by acquiring distribution rights for an Italian mini-bike. The former distributor, though, sued for violation of his contract, and the program was dropped. Perhaps this was for the best, however, as the next decision reached was to enter the market with a dirt machine. The Can-Am motorcycle division was thus formed, and Jeff Smith, former World Motocross Champion, was hired to develop machines which would create demands for the company's products. Further, it was decided that all proprietary items used—the 40 percent of the machine not made by Bombardier or its divisions—would be the best obtainable, regardless of cost or country of origin.

Now, the ultimate question: How does the product stack up against its promise?

First, Can-Ams employ some truly state-of-the-art engineering. Of particular note are the engine's intake system, and provision for the use of eccentrics to change the rake of the front forks. Also of interest is the mounting of the swinging arm rear suspension, and the use of the top frame tube as an oil reservoir for the automatic injection system.

Proprietary products used include Betor front forks, Girling rear shocks, Bosch CDI ignition, Japanese electrics and instruments, Mikuni injection pump, and Trelleborg tires (on the motocrosser). The fenders and gas tank are of cross-linked, high density polyethylene—a material which is virtually indestructible. Front to rear, top to bottom, and side to side, this bike is trick.

Appearance-wise, the new machines are attractive. Fuel tanks are silk-screened, but up close, the paint job looks cobby. Fenders use decals, and these often are not stuck on perfectly flat. Base color for both enduros and MXers is an off-white which is distinctive. The engine is finished in matte black. The 2-gal. gas tank mates perfectly with the front of the seat—and while the seat of a new machine may feel hard and unyielding, don't be fooled; it softens quickly into one of the most comfortable seats on any production motorcycle. The tank uses a soft rubber, screw-in cap.

The engines, once you get used to the idea of a rotary valve with a remote carburetor and tuned intake passage, are fairly conventional. The cylinders use an iron liner, and three oversize pistons are available. The 125s use a single Dykes ring, while the 175s have a Dykes ring with a conventional ring below it. The cylinder liner, incidentally, is catalogued and available.

Air intake is from under the seat, through a foam element which looks small, but seems to do the job well. Below the element is a large fiberglass still air box and reportedly this is one secret of the engine's performance. One dealer explained that other systems were tried, and resulted in a loss of power.

Like the airbox, considerable development time was spent getting an exhaust which provided maximum power and silencing. At a scrambles event, Can-Ams are noticeably more quiet than other machines in the same class. David Betten-court, a top New England expert motocrosser, tried to increase

the power of his Can-Am by modifying the exhaust. Everything he could think of yielded a *decrease* of from one to three brake horsepower, on a dynamometer. To further quiet the engine, the cylinder fins are drilled, and plastic tubing is inserted to dampen the ringing common to aluminum barrels.

A Bosch 30,000 volt CDI ignition is used. Because of this, the owner's manual specifically warns that: "Only stroboscopic timing lights utilizing capacitor or inductive pick-up can achieve correct spark without disturbing the electronic equilibrium of the ignition circuit." The amplifier coil for this circuit is mounted in front of the air box, out in the open, for cooling. In spite of this, the bike remains waterproof.

From the engine, power goes through straight cut primary >





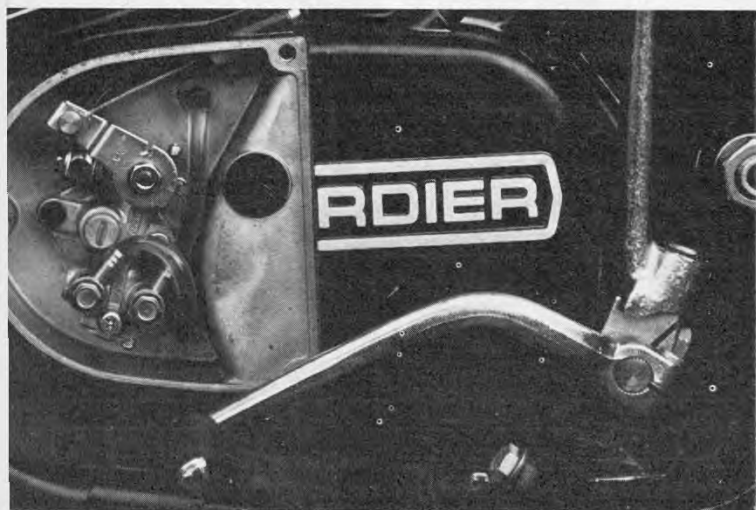
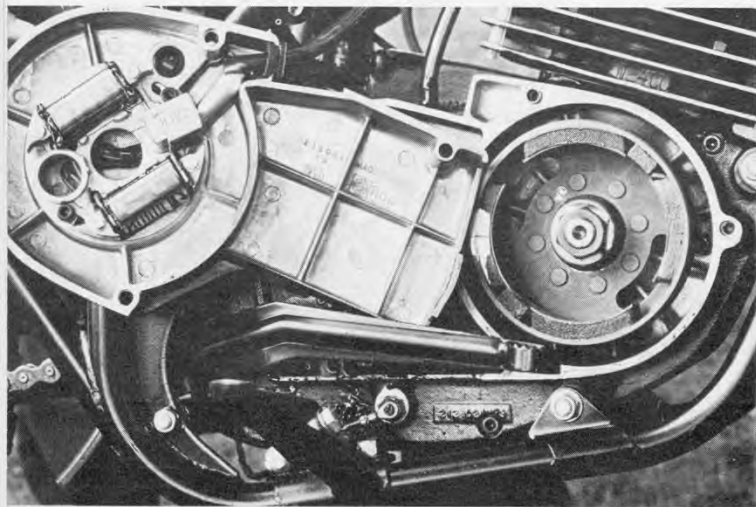
## THE CAN-AM BRIGADE

Tired Of Mundane Motorcycles? Want To Identify With The Slogan "Put Something Exciting Between Your Legs?" If So, Bombardier's 4-Bike Line-Up Of 125 & 175 Motocrossers And Enduros Are For You.



gears with a 3.286 reduction, to a six-plate wet clutch—which seems to stick a lot. From there it goes through a transmission which many have seen before. The six-speed unit is the same as the transmission on a KTM/Penton 175. Rotax, Bombardier's engine division in Austria, makes the unit for KTM. A sturdy chain guide around the output sprocket should eliminate broken cases from chainwhip.

Electrical needs on the machines, other than ignition, are served by a 55 watt alternator, and a 12V, 5AH battery. The headlight is small, though large by enduro bike standards, and it's not the sort of candle which encourages playing "Mike the Bike" on a deserted stretch of blacktop late at night. The motocross models have the lighting coils, but, of course, no battery, and no lights.



Directional signals on the T'nT models are an obvious attempt to create something legal which the frustrated owner will not rip off in disgust after the first brush with a tree limb. The front units are mounted from the handlebars, where they are well tucked in. The rear units are mounted on short, very flexible, rubber mounts, which can twist and flex all day long—as indestructible a set of directionals as anyone ever made, guaranteed to please.

The Nippon Seiki speedometer has a trip meter which is resettable forward and backward in tenths—a feature which enduro riders are sure to appreciate. The resetting knob must be pulled out deliberately to engage the resetting mechanism; when pushed back in, it is disengaged. The speedo takes its drive from the front wheel, to eliminate a false reading caused by wheelspin. The drive unit itself is extremely well shielded, to prevent dust, mud, and water from entering the front wheel bearings.

Clutch and brake levers differ from the MX-1 to the T'nT model. Those on the T'nT are apparently of Japanese origin, and work extremely well. They are a comfortable fit, and have good leverage. Those on the MX-1 are apparently of German origin, and provide slightly more adjustment from the lever-mounted cable adjusters. They do, however, require a longer reach—more than would be comfortable for many people—and they provide less leverage than the units on the T'nT.

Teflon-lined cables, made in Japan, transmit the leverage to the brake and clutch. They work well, but the front brake cable stretches readily, and the lever can be pulled back virtually to the bars with no increase in braking force.

The swinging arm bolt passes through the rear of the engine cases. This serves two purposes; first, it enables the swinging arm pivot to be as close as possible to the center of the output sprocket, thus minimizing chain wear; and second, it is a convenient way to increase the rigidity of the swinging arm mount without added weight. The swinging arm, however, does not have to be removed to gain access to the engine: merely remove the bolt, and the swinging arm stays roughly in the same place.

Trelleborg knobby tires are fitted to the motocrossers, while the enduro/play-bike models use Yokohama Trials Universals. Anyone serious about riding in the woods, or on sand, or in mud, should replace the tires on the T'nT with full knobbies.

The top tube of the double-cradle frame is a fabricated, tapered tube, which serves double duty as an oil reservoir for the injection system. Immensely rigid, it holds 2.3 U.S. quarts of injection-type two-stroke oil, which is carried by a fuel line with an in-line filter, to the twin-port Mikuni injection pump. The pump supplies oil directly to the main bearings, and also to the rotary valve, where it mixes with the incoming fuel to lubricate the top end. A drain plug is provided should the crankcase become flooded with oil or fuel.

Wheels use steel rims on all models, laced to conical alloy hubs. The rear brake employs a floating backing plate. The front wheel is 21 in. in diameter (WM-1), while the rear is 18 in. (WM-2). An interesting feature is the use of rubber plugs to prevent broken spokes from coming out at the hub end.

Sitting on the bike for the first time shows it to be a well-balanced machine—almost trials-like in that respect. The handlebars of the T'nT model seemed too wide. However, the motocrosser never felt that way.

The front forks are adjustable not only for rake, but also by raising them in the triple-clamps, and further by varying the weight and the quantity of oil. They feel soft, but will not bottom.

The rear shocks are stiff, especially for lightweight riders. >

# CAN-AM

## 125 MX-1 AND 125 T'NT

### SPECIFICATIONS

List price	.....	\$845, \$875 (p.o.e. East Coast)
Suspension, front	.....	telescopic fork
Suspension, rear	.....	swinging arm
Tire, front	.....	3.00-21
Tire, rear	.....	4.00-18
Engine, type	.....	rotary valve two-stroke Single
Bore x stroke, in., mm	.....	2.12 x 2.12, 54 x 54
Piston displacement, cu. in., cc	.....	7.54, 123.7
Compression ratio	.....	13:1 (uncorrected)
Claimed bhp @ rpm	.....	20 @ 9500
Claimed torque @ rpm lb.-ft.	.....	N.A.
Piston speed @ rpm ft./min.	.....	3356 @ 9500
Carburetion	.....	32mm Bing concentric
Ignition	.....	capacitive discharge
Oil system	.....	oil injection
Oil capacity, pt.	.....	4.6
Fuel capacity, U.S. gal.	.....	1.9
Recommended fuel	.....	premium
Starting system	.....	kick, folding crank
Air filtration	.....	oil-wetted foam

### POWER TRANSMISSION

Clutch	.....	multi-plate, wet
Primary drive	.....	straight-cut gear
Final drive	.....	single-row chain
Gear ratios, overall: 1		
6th	.....	11.26, 10.82
5th	.....	12.79, 12.28
4th	.....	15.37, 14.76
3rd	.....	19.71, 18.93
2nd	.....	27.09, 26.03
1st	.....	39.88, 38.32

### DIMENSIONS

Wheelbase, in.	.....	54
Seat height, in.	.....	30
Seat width, in.	.....	9
Handlebar width, in.	.....	33.5
Footpeg height, in.	.....	11.5
Ground clearance, in.	.....	9
Curb weight (w/half-tank fuel), lb.	...	222, 237

## 175 MX-1 AND 175 T'NT

### SPECIFICATIONS

List price	.....	\$925, \$955 (p.o.e. East Coast)
Suspension, front	.....	telescopic fork
Suspension, rear	.....	swinging arm
Tire, front	.....	3.00-21
Tire, rear	.....	4.00-18
Engine, type	.....	rotary valve two-stroke Single
Bore x stroke, in., mm	...	2.44 x 2.26, 62 x 57.5
Piston displacement, cu. in., cc	.....	10.6, 173.6
Compression ratio	.....	13:1 (uncorrected)
Claimed bhp @ rpm	.....	25 @ 8500
Claimed torque @ rpm lb.-ft.	.....	N.A.
Piston speed @ rpm ft./min.	.....	3201 @ 8500
Carburetion	.....	32mm Bing concentric
Ignition	.....	capacitive discharge
Oil system	.....	oil injection
Oil capacity, pt.	.....	4.6
Fuel capacity, U.S. gal.	.....	1.9
Recommended fuel	.....	premium
Starting system	.....	kick, folding crank
Air filtration	.....	oil-wetted foam

### POWER TRANSMISSION

Clutch	.....	multi-plate, wet
Primary drive	.....	straight-cut gear
Final drive	.....	single-row chain
Gear ratios, overall: 1		
6th	.....	10.35, 9.46
5th	.....	11.75, 10.74
4th	.....	15.43, 12.91
3rd	.....	18.11, 16.56
2nd	.....	24.89, 22.77
1st	.....	36.64, 33.52

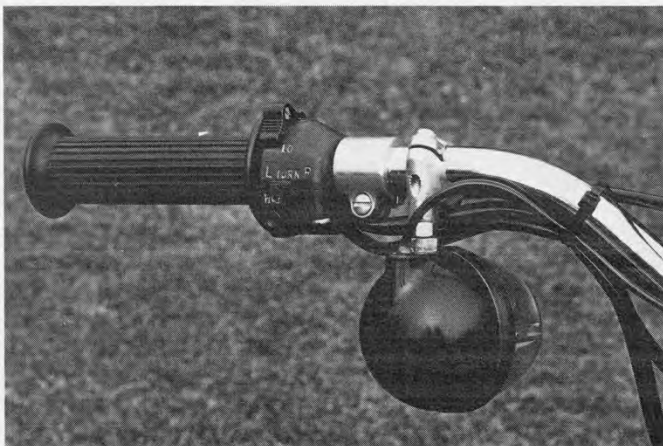
### DIMENSIONS

Wheelbase, in.	.....	54
Seat height, in.	.....	30
Seat width, in.	.....	9
Handlebar width, in.	.....	33.5
Footpeg height, in.	.....	11.5
Ground clearance, in.	.....	9
Curb weight (w/half-tank fuel), lb.	...	222, 239



Four mounting holes are provided at the top to permit some adjustment. Moving the top of the shocks forward softens their action, while moving them to the rear stiffens them. They are equipped with 75 lb. fixed-rate springs, and for the very light rider, these should be replaced with a lower rate spring.

The kick start lever tucks in extremely well also, though it may not when it comes from the factory; simply remove it, and move it forward a couple of splines, and it will tuck in so close you'll never know it's there until you need it. Turn on the key, which is located on a plate at the left of the fork crown. You'll notice that the taillight comes on at all times when the key is on. The motocrosser, of course, has no key, but both models have a handlebar-mounted kill switch. The



T'nT has a starting device on its carburetor; the MX-1 has the same carburetor without a choke. Lift up the starting device and turn it to lock it on; use no throttle, and kick. For warm starts, of course, no tickling or choking is necessary. Generally, two kicks will start any Can-Am, hot or cold. Primary kick starting means you don't have to find neutral before starting; just pull in the clutch.

As mentioned, the clutch sticks a bit, and it clunks when you go for first gear. Once underway, shifts are smooth, with or without the clutch, except between first and second, where some degree of throttle coordination is necessary for a smooth shift.

The engine is quite powerful and very peaky. The peakiness improves a bit as the bike is broken in, and is due in part to rich jetting and oil pump settings which can be changed after the unit is broken in. The 125 T'nT we rode had never been properly fettled, and its powerband looked like the top half of a square wave graph. It came on like a bullet, and just shut itself off at the top end. On the road, however, it went faster than the motocrossers, due to higher gearing.

The heat shield on the exhaust pipe constantly hits your left leg, virtually preventing knee contact with the tank, and it gets hot. "That pipe is a major hangup," said Bettencourt. It's a shame to spoil such a good motorcycle with such an obvious flaw. Perhaps the answer is to route it between the frame tubes, like on some of the Yamaha motocrossers, though this might involve relocating the ignition coil, and modifying the air box.

Unlike the exhaust system, the rear brake lever is tucked in well—so well that you have to consciously reach for it. The brakes are smooth and progressive, rather than powerful. For use on the dirt, they rate superlative—until they get wet. Some attention really should be given to waterproofing the brakes.

Dave Bettencourt and Ferd Dolliver, our two resident motocrossers, were talking about the first time they took their bikes to a motocross at Mount Cathalia, N.Y. Before practice, other riders were commenting, "Oh, those things are too heavy, they don't go." After the first moto, the talk changed some. "Oh, those things are prototypes; you can't buy them." Well, they weren't prototypes; you can buy them, and a couple of riders who swapped TM125 Suzukis for the Can-Am swear that the Can-Am is faster. They also note that the rear end doesn't twitch around like a popular brand of European motocrosser, and our riding confirmed that; the Can-Ams tracked straight and true at all times.

The two motocrossers had riders staring in disbelief. High speed wheelies and incredible jumps are easy on either the 125 or 175. The same would be true of the 125 and 175 T'nTs if better off-road tires were fitted at the factory. Still, they are impressive to say the least.

So which are better, the 125 versions or the 175s? Physically, they are identical. A similar cylinder casting is even used. Really, they are 125s with a larger bore, different piston, and different jetting. Riding wise, it takes a little more oomph to kick the larger bike over, and it vibrates noticeably more than its little brother, though this is not objectionable while riding it seriously. It probably would be noticeable on the street, however. It also costs \$80 more than the 125—and pulls from a near idle in sixth gear. If you can live with the vibration, this would be our choice, especially for the novice woods rider, who will find the 125's peakiness hard to live with.

Dave Bettencourt, in perhaps the understatement of the year, described these bikes as "good starting points." It's clearly an outstanding first effort, and four of the very best dirt bikes you can buy anywhere. 