

# aprilia futura

by Dave Searle



**Y**OU'VE GOT TO be impressed with Aprilia; a brand new company, formerly building nothing but scooters, first winning multiple 250cc world roadracing championships against dominant Japanese opposition and then mounting a serious challenge for the prestigious World Superbike Championship in only their second year of competition. The RSV Mille ("Thousand"), the first machine to house their innovative "V990" 60° V-twin, was more than a contender; it won outright our Superbike Twins comparison against Ducati's 996 and Honda's RC51 (albeit in a non-compliant state of tune). Last year the company's range was expanded into both the sport-touring and adventure-tourer segments with the introduction of the Futura and Capo-Nord at Intermot in Munich.

Innovation is one of Aprilia's hallmarks, and the Futura is an excellent example. You immediately notice its very handsome single-sided swingarm. Study it and you realized it was designed not just for fashion, but to allow the rearmost portion of the stainless steel exhaust system to be compacted under the seat so that two large symmetrical hard bags can be fitted tightly and up high without compromising ground clearance—maximizing two important sport-touring virtues.

The exhaust system is another example. Because the engine is a dry sump design, with a remote oil tank and a scavenge pump to keep oil off the crank, it eliminates oil starvation during wheelies, minimizes windage losses, and keeps the crankcase compact, providing room for a large first-stage muffler under the engine. This first muffler is not cylindrical, but a shaped box, an idea seen first on the Buell Blast. Each cylinder's exhaust pipes run first to this box, and then

a pair of pipes exit to reach the underseat unit with a single outlet at the rear—a unique 2-into-1-into-2-into-1 system. Aprilia says this arrangement has the benefit of taking most of the heat out with the catalytic converter in the first stage, and making the final under-seat muffler cooler. Total expansion capacity is 15 liters, the kind of serious volume a big twin needs to make strong power within legal sound limits.

## Powertrain

Naturally, the V990 motor has been retuned to idealize the power delivery for the mission (and this time was strictly DOT compliant): Throttle bodies are still the Mille's 51mm, but downstream, the ports have been necked down to increase charge velocities for more torque in the lower rev range. A larger 470-Watt alternator also gives more rotational inertia for smoother running.

The standard twin plug ignition offers enhanced efficiency with the large four-valve combustion chambers and has been remapped to match new camshafts profiled to increase low and midrange torque. The cams themselves, as on the Mille, are driven by a combination of gears and chains to compact the cylinder heads. Again, Aprilia's patented pneumatic one-way clutch is fitted to prevent any rear wheel hop during downshifts when riding aggressively.

A brand-new Sagem engine management system with closed-loop fuel injection utilizes a new injector design and now cycles every 10° of engine rotation for very fine mixture correction. The Mille, by contrast, used a Nippon Denso injection, optimized for high rpm power, that made corrections every 90°. The new system features auto-

matic idle control (no choke lever needed) and what Aprilia calls Dynamic Ignition Advance Control that optimizes the sparks individually for each cylinder. We find Sagem's system is the best at providing smooth transitions between on/off throttle and at cruise, allowing very subtle speed corrections without staggers or lurching.

Where a 90° V-twin can do without counterbalancing, the Aprilia's compact 60° V-twin is inherently rougher. Therefore, a patented twin balancer design, with a primary balancer driven off the front of the crank and a clever secondary balancer geared to the camshaft in the rear cylinder work to keep the shaking down. They undoubtedly make a big difference, but are not completely effective.

The Futura's gearing is very tall, the engine turning just 3500 rpm at 60 mph in top—where the engine makes just 36.3 hp. Therefore, top gear passing power is minimal, and quick overtaking requires a downshift or even two, but at 5000 rpm the motor begins to vibrate strongly, and from there up to redline at 9500, the thrashing increases. However, while cruising, you're very happy to run the engine in the 3000–4000 rpm range, where it throbs nicely and runs smoothly, so the occasional high-rpm vibration isn't an annoyance.

Power output in this retuned configuration is 93.9 hp @ 9000 rpm, and the torque spread is broad; it stays above 50 lb. ft. from less than 3000 rpm to redline at 9500 rpm with a peak of 62.2 @ 7250. The tuning is also superb at very low speed, with strong, easy to use power right off idle and no low-rpm flat spots. Aprilia claims that the Futura is the most powerful V-twin sport-tourer. *Hmm?* We noted that the 916cc Ducati ST4 made 99.3 hp in our testing, but because it doesn't come stock with saddlebags, rates as a sportbike...so they're technically correct. FYI, the ST4 also costs \$300 more but weighs less; 524 lbs. Despite the Futura's aluminum chassis, it scales at 542.5 lbs. wet.

## Running Gear & Handling

The forks are an image of strength; fully adjustable inverted Showa units with giant 43mm tubes, and the front axle is really enormous, 30mm at the left leg, to securely tie the sliders together for minimum flex.

The rear suspension has a progressive linkage and carries a rebound adjustable Sachs damper. Although Sachs is not well-known to motorcyclists, their equipment is very high quality and we had no quibbles with the damping choices at either end; an especially good thing at the rear, as access to the rebound screw is difficult, requiring the help of an extra-long screwdriver that isn't provided in the tool kit.

Also, the machine is more sensitive than

most to front-rear spring balance. If you get it wrong, it will pitch strangely mid-corner. However, this is easily handled as the rear shock's preload adjuster can be adjusted on the fly. It's located just beneath the rider's left thigh, and we found that a rear setting softer than we might have guessed turned out to have the best balance. We wish this vital adjustment could be so easily made on all bikes. On too many, adjusting the suspension for the weight of a passenger and/or luggage is so difficult that it often just isn't done at all, badly compromising the handling.

The Futura's brakes are excellent Gold Series Brembos, fitted with Freudenberg brake lines that provide the same advantages as braided stainless. Front braking power is strong and the feel is exceptionally good. The rear brake is powerful enough for the additional load of a passenger and luggage, but lacked the front's feel. By simply using it gently, we avoided inadvertent lock-up when riding solo. During our braking performance tests, the bike exhibited excessive front end dive (a symptom, we felt, of its relatively high CofG), and we stiffened the front preload three notches to achieve our best stop of 113.2', but felt this setting was too firm for everyday riding.

## Origami Style=Stealth

The Futura's bodywork looks like origami; very sharply creased and angular, and it's a dramatic contrast to the soft, blunt shapes of the Mille. Neither bike's styling is a knockout, but both have a look that reflects a refreshing originality and intelligence. The nose is particularly dramatic; a huge expanse of clear plastic from the base of the headlights' pointy nose to the top of the windshield; very sci-fi. The windshield itself is nicely finished, being a cast piece with a rounded lip and slight deflector edge at the top, and provides a good wind pocket for the rider, shedding much of the airstream to the sides, and cutting the wind off at chin level without producing any turbulence around the rider's helmet. The rider's hands are shielded by the shapes of the nose, and side panels deflect around the the knees as well; very effective.

Like the Mille, the Futura uses three beams aimed through faceted reflectors that shine through clear lenses. The central one is the low beam and the two uppers are highs. Although the folded paper styling may look slightly odd to some eyes, it has an unexpected benefit: stealth. Under the radar's watchful gaze, the Futura twice disappeared before it had reached a quarter-mile distance, and approaching on its top speed runs, it didn't register at all until it was less than a quarter-mile away—better than a free radar detector.

The seat is released by what looks like an additional ignition lock to the left of the dash, and once it's released, not only the seat, but the whole substructure it's attached to comes off with it. You may remember, when the bike was first shown, that the whole area from the tank to the tail was upholstered as part of the seat, but negative comment probably caused it to be redesigned prior to production. We're glad.

## Handling/Riding Impression

With a rake and trail of 26°, 4.0", the steering geometry has obviously been designed for stability, and that's the initial impression it makes. The handlebar effort is slightly heavy but the Futura runs reassuring straight and steady at high speeds on the freeways. However, the bike's abundant bodywork also means that sidewinds will have some leverage over its direction. We had a less than ideal day for our high desert performance testing and the Futura did



exhibit some weave from the effects of gusting winds at its top speed; a very remarkable 151 mph. For a 94-hp bike to achieve this velocity requires good aerodynamics, and Aprilia is justifiably proud of its wind tunnel testing.

However, the Futura is not all about straight line prowess. Once the front to rear spring preload was adjusted to our satisfaction, we found the bike very entertaining to ride on even the twistiest of roads. The front end feels planted and trustworthy and with no low-lying exhaust pipes to grind, it's only boot leather that alerts you to how much fun you're having. The fuel injection's subtle controllability is a tremendous plus as well when you're heeled over in unfamiliar corners and need to modulate your speed smoothly. Also, if both brakes are used together, there is no tendency to stand up when trail braking into turns.

Ergonomics are very nice: Both hand levers are adjustable, the riding position is

nearly ideal for sport-touring and the gas tank is tapered very sharply to be narrow between the legs. But, unfortunately, the seat has a slight bulge at its front that makes it hard to grab the tank with your knees. However, at the end of a long day in the saddle, the seat foam is still comfortable, and the passenger's portion is likewise well-designed for the long haul.

## Details

The fit and finish is excellent and a centerstand is standard. Aprilia's instrument panels are very trick (see the detail photos), full of info and easy to read. The bodywork decals are under clearcoat and the aluminum frame, where you can see it between the chassis panels and the seat, is polished and clear-coated—*bella!*

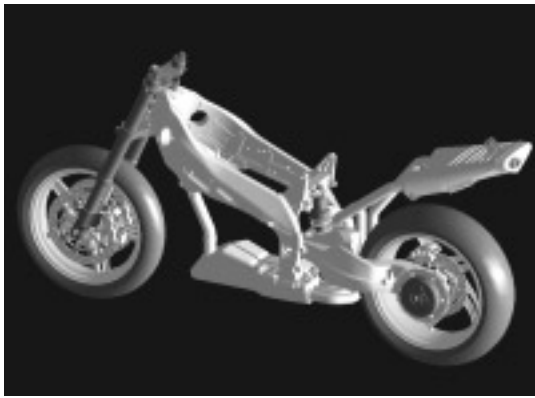
A pair of excellent hard bags are also standard equipment (saving you as much as \$1000 over buying them as an option). Styled and painted to match, they fit well back, providing sufficient room for the passenger's legs, and their mounting arrangement is very clever: Two fingers hook into discrete rectangular openings under the seat and a latch at the bottom engages a small support aft of the passenger pegs. To be sure they don't bounce around, small elastic clips at the rear secure the bags to rubber stops built into the license plate support structure.

The turnsignals are integrated into the mirrors, which makes them highly visible, and they also pivot around their stalks if clipped in traffic or you need extra clearance loading the bike into a van. But their shape is peculiar and they are not large. Worse, they're far away and out on the ends of their stalks, they vibrate enough that your view is not as clear as it could be. Turning your head to see if the lane next to you is safe to enter leaves you vulnerable, and we'd much prefer some sort of spherical portion (as Ducati uses) to minimize the blind spots.

Another gripe: You look for a place to grab the rear of the bike when you're putting it on its centerstand (difficulty is average). You might try the passenger grab handles, but they flex and you suspect they're not strong enough. You end up using the passenger footpeg support, but it isn't really angled or placed correctly.

## Conclusion

We are very impressed with the Futura. It's a very nice ride and fully able to satisfy the contradictory demands of sport-touring; providing a more than passable imitation of a sport bike for enjoying winding roads, and supplying both rider and passenger all-day comfort. If you believe beauty is as beauty does, you'll find it looks better after every ride. 🍀



Left: Computer illustration of the chassis shows the layout of the unique two-into-one-exhaust system. Expansion volume is 15 liters for unrestricted power with low sound levels.

Right: Stylish hard bags are standard equipment, and each will hold a full face helmet. Central silencer allows them to be extra large and high for good ground clearance.



Below: Pointy nose and triple headlight arrangement make the Futura's styling unique. The faceted, angular bodywork is very good at evading radar, too! The mirrors, with the turnsignals built into their forward edges, remind us of the invaders from H.G. Wells' *War of the Worlds*. Unfortunately, they vibrate on their stalks and are too far from the rider to do an adequate job of revealing traffic. However, they do make the front turnsignals easy to see.



Below: Futura's seating is well-shaped and comfortable for the long haul. The rear spring preload can be adjusted on the fly (carefully) by a knob just under the edge of the rider's thigh. Single-sided swingarm makes tire changes and chain adjustment a snap and a centerstand is also standard. Rectangular openings beneath the rear bodywork and small bracket attached to the passenger peg bracket support the saddlebags.



Above: Two analog gauges; the speedo and tach, are included in a multifunction digital panel featuring a clock, ambient air temp, water temp, liters of fuel remaining (displayed graphically and numerically) and "service" messages including any fuel injection malfunction. The lighting is blue on black—very trick.



## TESTERS' LOG

I love "love it or hate it" things and the look of the Futura surely falls into that category. It's anything but bland. Of course, we have no idea if this is how all things will actually look in the future, but if they do, it's fine with me. I think the thing is downright amazing right down to the last detail. The first thing you notice when climbing aboard is that it feels huge, especially compared to the rather diminutive VFR800 Honda. A somewhat tall seat height combines with the very wide dash panel to give you this feeling. Hit the starter and what's for my money the best sporting twin in the biz comes to life under you. The Futura is fast in an almost sneaky way—torquey and spirited up top, smooth and full of character. I would have preferred a more potent exhaust note than the muted hum emitted by the cool triangular underseat pipe. My only real complaint is that my ride on the thing was way too short and as a recent VFR owner, I feel especially well-qualified to give the Futura a grueling long-term road test for your benefit.

Hopefully Aprilia will read this and send one right over.

—Steve Natt

I have always appreciated the simplicity, sound and feel of a twin, particularly a V-twin; throw in four cylinder performance, sprinkle on sport-like ergonomics and a wide, comfortable seat that offers mile-after-mile of comfort, a fairing that does a good job of

deflecting the wind blast at speed and what do you have? An Aprilia Futura!

The more I ride this bike, the more I like it. The integrated saddlebags are large enough to accommodate enough gear for extended periods on the road (a must for the kind of riding I like to do). Or, if you are commuting around town with bags empty, you can store your full coverage helmet in one bag and jacket and pants in the other. The fairing also does a good job of deflecting engine heat; no "hot legs here." Optically, the windscreen is one of the best. And the soft blue instrument lights are easy on my eyes at night.

But the one feature I like best about the Futura is the fuel injection. No hunting or surging to find the proper mixture. Just spot-on control and that translates to great throttle response and smooth cruising!

—Walt Fulton

Very few machines big enough for two adults can really inspire you to ride them like sportbikes, but the Futura does. Its combination of handling, comfort and performance as well as refinement put it right at the top of the sport-touring class.

And, even though the styling doesn't really inspire me, the first guys to fly stealth aircraft probably said the same thing!

—Dave Searle

# 2001 Aprilia RST 1000 Futura

## SPECIFICATIONS AND PERFORMANCE DATA



### ENGINE

Type:.....liquid-cooled, 60° V-twin  
Valvetrain: .....DOHC, 4 valves per cyl., adjusting shims under buckets  
Size:.....997.62cc  
Bore/stroke:.....97.0mm x 67.5mm  
Comp. ratio: .....11.4:1  
Carburetion:.....Sagem electronic fuel injection, 51mm x 2  
Exhaust: .....2-1-2-1 with cataly

### DRIVE TRAIN

Transmission: .....6-speed  
RPM @65 mph/redline .....3850/9500

### DIMENSIONS

Wheelbase: .....56.3"  
Rake/trail .....26.0°/4.00"  
Ground clearance: .....4.75"  
Seat height: .....31.5"  
GVWR: .....903.9lbs.  
Wet weight: .....542.5 lbs.  
Carrying capacity: .....361.4 lbs.

### SUSPENSION

Front: 43mm Showa inverted cartridge forks, adj. preload, comp., reb. damping, 4.7" travel  
Rear: .....Sachs damper w/remote preload, and adj.rebound damping, 4.7" travel

### BRAKES

Front: dual 300mm discs, four-piston, double-action Brembo calipers  
Rear: .....255mm disc, twin-piston, double-action caliper

### TIRES & WHEELS

Front: ..120/70ZR17 Michelin Pilot on 3.50" x 17" wheel  
Rear: ....180/55ZR17 Michelin Pilot on 5.50" x 17" wheel

### ELECTRICS

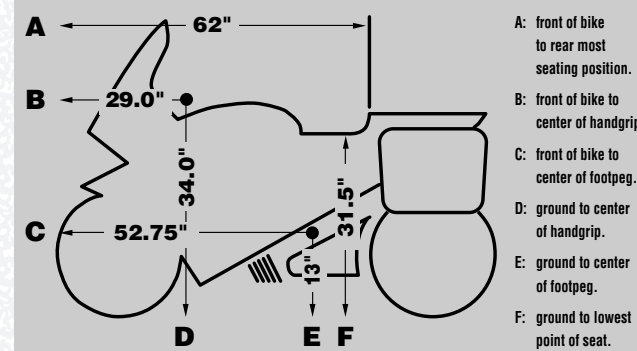
Battery: .....12V, 12AH  
Ignition: twin-plug digital-mapped with throttle position sensor  
Headlights: two 55W high, one 55W low

### FUEL

Tank capacity: .....5.55 gal.  
High/low/avg. mpg: ....43.9/33.9/39.7



### ERGONOMICS TEMPLATE



### MISCELLANEOUS

Instruments:..... analog speedo, tach, indicators: hi-beam, t/s, neutral, kickstand, clock, ambient temp., odometer, tripmeter, fuel remaining (both numerical in liters and graphically), coolant temp. EFI malfunction  
MSRP: .....\$12,999  
Valve adj. interval: .....9350 mi.  
Warranty: .....12 mo., unlimited miles  
Colors: .....Stream Grey (silver), Flame Red, Infinity Blue

### TEST NOTES

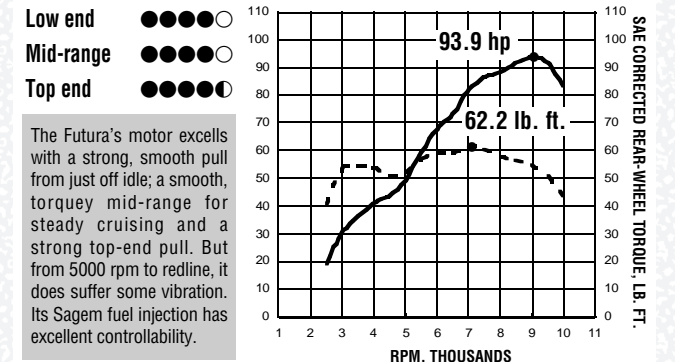
#### PICKS

- Stealth benefits compensate for curious origami styling
- Excellent all-around performance for a sport-tourer
- Very nice hard bags are standard equipment

#### PANS

- Slightly top-heavy feel in transitions and heavy braking
- Mirrors need to be steadier and to show more rear view
- Needs a grab handle for the centerstand

### DYNAMOMETER DATA



The Futura's motor excels with a strong, smooth pull from just off idle; a smooth, torquey mid-range for steady cruising and a strong top-end pull. But from 5000 rpm to redline, it does suffer some vibration. Its Sagem fuel injection has excellent controllability.

### PERFORMANCE

Measured top speed .....151 mph  
0-1/4 mile .....11.04 sec.  
121.12 mph  
0-60 mph .....3.24 sec.  
0-100 mph .....7.62 sec.  
60-0 mph .....113.2'  
Power to Weight Ratio .....1:5.78  
Speed @ 65 mph indicated .....64.0

### M/C RATING SYSTEM

EXCELLENT  
VERY GOOD  
GOOD  
FAIR  
POOR

#### Sport-Touring

Engine ●●●●○  
Transmission ●●●●○  
Suspension ●●●●○  
Brakes ●●●●○  
Handling ●●●●○  
Styling ●●●●○  
Riding Impression ●●●●○  
Instruments/Controls ●●●●○  
Attention to Detail ●●●●○  
Value ●●●●○

OVERALL RATING ●●●●○

### STANDARD MAINTENANCE

Item	Time	Parts	Labor
Oil & Filter	0.6	\$12.31 + \$20	\$32.40
Air Filter	0.3	\$20.99	\$16.20
Valve Adjust	2.0		\$108.00
Battery Access	0.2	MF	\$10.80
Final Drive	0.2		\$10.80
R/R Rear Whl.	0.2		\$10.80
Change Plugs	0.5	4 x \$4.48	\$27.00
Adjust EFI	0.3		\$16.20
<b>Totals</b>	<b>4.3</b>	<b>\$71.22</b>	<b>\$232.20</b>