

## **Saving Old Standards**

**-A lesson in low-cost motorcycling**

**-by Joe Minton**

## **The Ultimate Parts-Bin Special**

**-by Don Canet**

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that the remaining pages will line up  
as they were originally printed.**

# SAVING

# OLD

# STANDARDS

A lesson  
in low-cost  
mototcycling

BY JOE MINTON

**P**rogress is a wonderful thing, but it is not without its victims. The general-purpose motorcycle is just such a casualty To-

day, you or I can buy a streetbike that is faster, more stable and better handling than any purpose-built, four-stroke racer of a decade ago. We can buy a bike that can hit 175 mph on the way home from the dealership. Astonishing. But, for many riders, largely irrelevant on a day-to-day basis.

Somewhere between the 1960s, when we were pleased just to get home with a running engine, and today's ultimately reliable but often overspecialized motorcycles, there was a happy hunting ground. A time when machines had become reliable, but manufacturers had yet to paint themselves into any styling or special performance corners. Yamaha's 1982 XJ650 Seca sits squarely in the middle of that happy time. And there are

many others (see "Keepers," page 42), used bikes that today offer a low-cost entry into the world of mototcycling.

Like many of these bikes, the XJ650 is practical. Practical in the sense that it will do many things well and reliably. It will also steer, stop and go with surprising vigor. While it won't set low-lap records at your favorite track, it won't land you on the chiropractor's couch, either.

Though a stock XJ works well, it does carry some of the baggage of its era, including mushy brakes and overly soft suspension. Also, like many other mid-sized Japanese bikes, its engine is tuned for high rpm power production, with relatively weak midrange output. All these things can be improved for a moderate outlay of money, effort and time. Locally, the going price for a well kept XJ650 is about \$800. With another four or five hundred dollars,



you can have an excellent bike that will give years of faithful service.

## CHASSIS

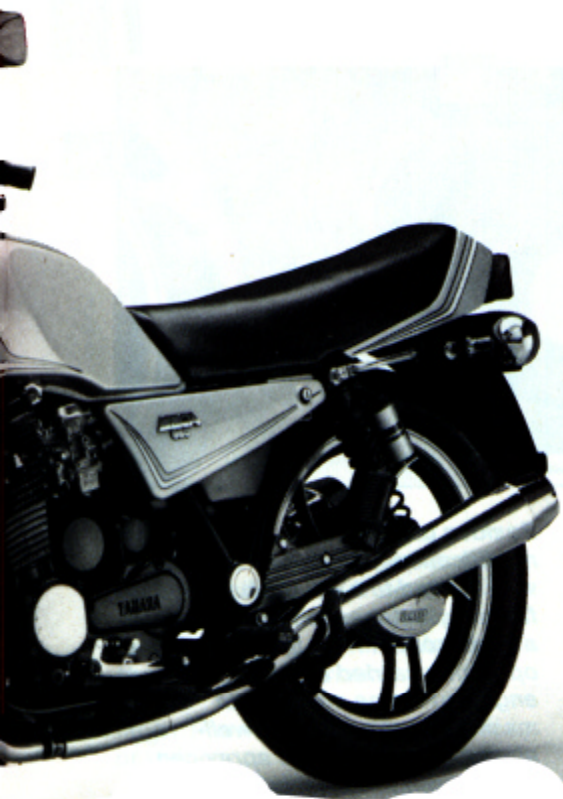
As mentioned, the XJ650's front disc brakes, like most of those fitted to bikes of its period, are in need of improvement.

Back in the 1970s and early '80s, Yamaha used a rather soft stainless steel for its brake rotors. It would gall and form grooves, which, in turn, affected how well the brake pads worked against the convoluted surface. But if the soft discs' working surfaces were drilled with sharp edged holes in a pattern such that the edges of the holes would wipe across the entire surface of the pads, the rotors would not gall. A company called Spec II has been drilling rotors for more than 10 years. Owner Gary Shumake uses an attractive, 96-hole pattern on Yamaha rotors. He leaves the holes sharp-edged, and they work just as I have described.

*A Seca 650 on test in 1982. "Good sporting fun, a bike that's right for the times," concluded our report on the Yamaha. Almost a decade later; with the right modifications, the same is true.*







***After nine years and 20,000 miles on the road, the Seca remains a good traveling companion.***

Stock XJ650 brake pads are okay, but are not as effective as Ferodo's soft-compound (#2453) pads. The Ferodos, when combined with the drilled discs, will smooth and flatten an already galled disc. They last a long time, require less lever effort than stock pads and continue to work well when wet.

While drilled discs and Ferodo pads will enormously improve the feel and effectiveness of your brakes, a set of more rigid brake lines will completely update the system. Again, like bikes of its ilk, the XJ650 was fitted with several feet of rather limp rubber brake hose. You can gently pinch one of the stock brake hoses between your thumb and finger and feel it swell when you apply the brake. This brake-line expansion is the main reason the stock brakes have an imprecise feel. A set of rigid lines such as those sold by Russell Motorcycle Products or Earl's Supply will change all that. The replacement lines have a firm teflon core that is covered with stainless-steel braid, and will not expand enough to notice. The combination of

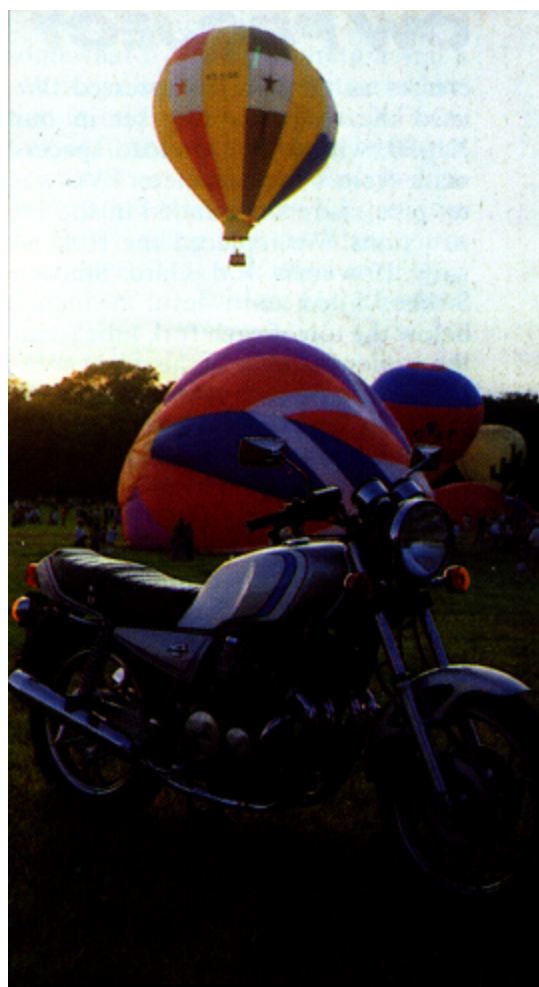
pads, drilling and brake lines still won't make an old motorcycle stop with quite the feel and power of the latest sportbike, but the improvement will amaze you.

I used to recommend DOT 5 (silicone) brake fluid because of its great chemical stability and the fact that it does not attack paint. However, DOT 3 (or 4) will give better brake-lever feel. DOT 5 is a compressible fluid and will take away some of the crisp feel you bought the lines, pads and drilled discs to get. One important thing you should do, whichever brake-fluid type you choose, is replace the old fluid with new. DOT 3 fluid will deteriorate with time and should be replaced every two years.

An important element in the stability of any motorcycle, especially at high speed, is the condition and adjustment of its steering-head bearings. Part of any fix-up must include a close look at this area. Nearly all motorcycles of the late 1970s and most into the early 1980s had what the bicycle guys call cup-and-cone steering bearings. This bearing type consists of loose balls carried in replaceable inner and outer races. The contact area of cup-and-cone bearings is very small, causing them to dent and wear rapidly. I recommend that you replace any cup-and-cone bearings with the much more durable tapered-roller bearings that are now standard on nearly all motorcycles.

For some reason, most Japanese cone-type bearings have odd race diameters, so you cannot simply buy a set of standard tapered-roller bearings from a bearing house. The only source of specially sized bearings that I know of is K&L Supply in Santa Clara, California. If your dealer has trouble finding these bearings, give K&L a call. Typical of even sporting motorcycles of a decade ago, the XJ650 was rather softly sprung and lightly damped. While its suspension will give a very smooth ride, it does not encourage nor reward the rider who changes cornering attitudes quickly.

There are several aftermarket manufacturers that can supply rear suspension units that are functionally superior to the stock components. Our XJ already had a set of Swedish made Ohlins fitted. There was no reason to change them, as the Ohlins are of very high quality and both the damping characteristics and spring rates were well suited to the XJ. At \$383, the Ohlins are pricey, but worth it. Those on a tighter budget could try Progressive Suspension or Works Perform-



***The Seca as purchased new by CW's Editor David Edwards. The bike was subsequently sold, then re-purchased by him in 1990. List price in 1982 was \$3099. Today a good used example costs less than \$1000.***

mance for a more economical dual-shock setup.

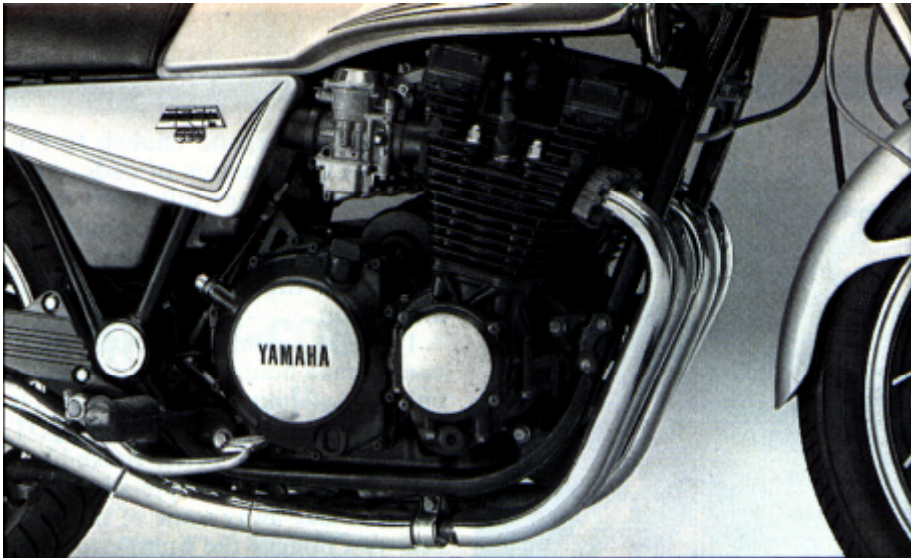
Choices narrow considerably when it comes to upgrading the fork. As far as I know, only Progressive Suspension supplies an extensive range of alternative fork springs for older bikes, something the XJ650 needed rather badly. Almost half of an XJ650's 5 inches of fork travel is lost just holding the bike and rider up. Brake hard with stock springs, and the fork comes very close to bottoming, which can cause the front tire to skip over road irregularities and which eats up ground clearance, a consideration if there's a corner coming up.

It is possible to have both a good ride and braking/cornering control. As the company's name suggests, Progressive Suspension's fork springs are progressive that is, their rate increases as they are com-



## CW PROJECT

pressed We used the #1106 spring set in our XJ650, with 1-inch preload spacers made from 1-inch-diameter PVC water pipe, as recommended in the instructions. We replaced the fork oil with 10weight Kal Gard Smooth Stroke, filled to a level 6 inches below the top of each fork tube (with the springs out and the fork completely compressed). After initial test rides, we cut down the spacers to a half-inch. This combination gave a fine ride and dramatically reduced dive under braking. On other bikes, you should be prepared to spend a day or two dialing-in preload-spacer length, oil level and even oil viscosity. A little experimentation goes a long way to getting the front end just right. A final touch up front was the addition of a Telefix fork brace. The bike's 36mm fork tubes may have been standard fare in 1982, but look spaghetti-thin when compared to today's muscular stanchions, and can use the shoring up the brace provides.

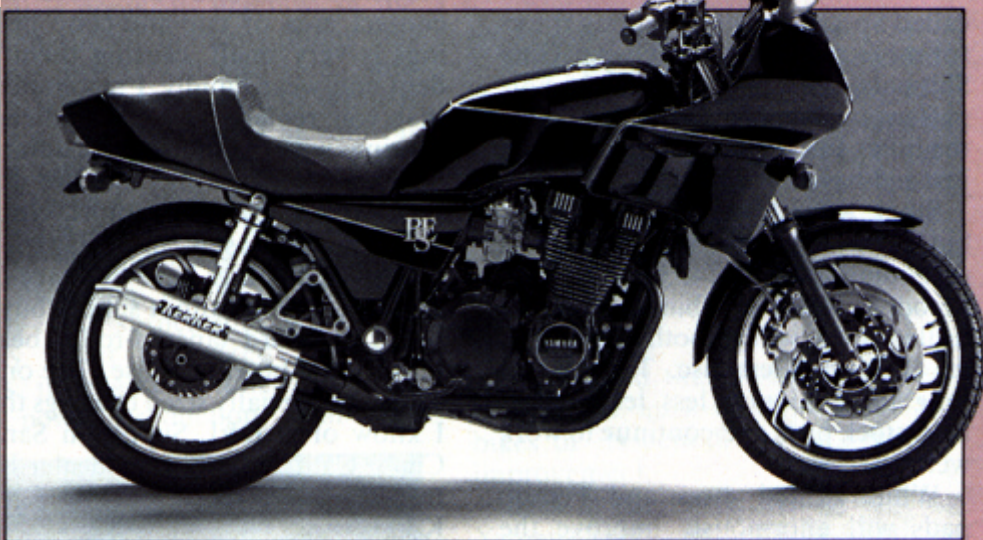


Our 20,000-mile Seca already had gone through two sets of tires and was in need of a third set when we bought the bike. Keeping the XJ's sporting nature in mind, we fitted a Metzeler ME33 Laser front tire and an ME55 Metronic rear. Metzeler lists these tires in the "sport-touring" category, and they come as standard equipment on Suzuki's Katana 750 and 1100. We selected tires that were one size wider than standard simply because the XJ was fitted with very

*Besides carb rejetting and airbox modifications, the XJ650's engine was treated to a paintjob. The faded cylinder assembly was given a fresh coat of high-temp black, the operation carried out with the engine in-frame courtesy of masking tape and some well-placed spritzes from a spray can. Next on the to-do list is a re-timing of the bike's cams to gain more mid-range, a modification that many older bikes can benefit from. We'll*

## PERSONAL PROJECT

# THE ULTIMATE PARTS-BIN SPECIAL



**H**appiness, for Bruce Enderle is being an employee at Yamaha motors Corp., U.S.A. with access to a parts bin stocked so full of goodies it rivals a fridge on Thanksgiving day. For Enderle, a 42-year-old technical specialist, purchasing a written-off wreck of a 1982 Yamaha Turbo 650 Seca from an insurance company set into motion a project that would see the bike once again on the road, but not without first receiving donations from 15 different

Yamaha models.

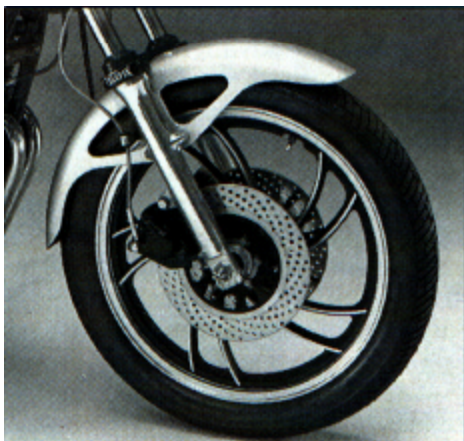
In its original form, the Turbo Seca's styling was a bit, well, peculiar. "Ugly," says Enderle, whose major goal was "to give the project a cleaner visual appearance, maintaining the fun of a boosted motor and updating other components in the process.

Over the course of 18 months, Enderle occupied much of his spare time designing, modifying and fabricating the pieces which make the BES (Bruce Enderle Special) unlike any Seca we've seen.

Taking full advantage of his employee discount on parts, as well as having after hours access to Yamaha's machine-shop facilities, Enderle completed the project for a remarkably low investment of less than \$2000.

As you might expect with a wrecked bike, the fork was bent beyond repair. But measurements revealed that an FZ600 fork would fit into the Turbo's triple clamps without modification. Next came the wheels and brakes. More dimension checks proved





**Anatomy of a fixed-up front end:** New tire, drilled discs, better brake pads, steel-braided lines and a fork brace. Fork tubes were polished to get rid of pitting and discoloration in the original clear-coat.

narrow tires from the factory. The larger tires have caused no handling or stability problems, indeed the Seca remains as neutral-handling as ever. The XJ650 is one of the more comfortable high-speed unfaired motorcycles ever built. At 65 mph the XJ's

seat handlebar and footpegs leave most riders balanced nicely against the wind. We managed to improve the bike's ergonomics, though, with some seat surgery. The best seats are flat, wide and thick. The XJ650 has a seat that works very well, though it has a slight step and a lumpy cover

Any auto-upholstery shop can sew-up a new seat cover without the styling ridges so common to stock seats like our XJ650s. Ours was modified by Gene Ackerman, who has probably ridden more miles in the dirt than most of us have on the street. As a favor to us-he isn't interested in any extra business-Ackerman trimmed the step from our XJ seat foam and made a simple, smooth cover out of the same thick naugahyde he uses to make dirt-bike seats for his riding buddies. The thick material won't wrinkle when sat on, and helps support the rider's back-side that much better. As noted, most upholstery shops should be able to carry out the same operation.

## ENGINE

Like most engines from the '70s and early '80s, the Seca's dohc, air-cooled,

inline-Four is hampered somewhat by lean carburetion and a restrictive air-box, leading to a reduction in mid-rpm power. The XJ's intake is further encumbered by its paper air-filter element. Also, as with many other bikes of the XJ's era, the air path leading into the filter box is restrictive. This was done to silence the honk of wide-open throttle operation.

We tackled both these problems by doing away with the rubber airbox snorkel and by installing a K&N pleated-cloth filter element. It is possible that further slight gains in air flow could have been made by deep sixing the airbox altogether and using four separate filters, but in keeping with our moderate approach to modifying the XJ, we choose not to do this. The K&N replacement element in the modified airbox allows only a little more noise than stock, yet is so much less restrictive that I had to go up three mainjet sizes to correct our XJ's full-throttle mixture after its installation.

The filter change, though, made the part-throttle mixture even more lean that it already was. There isn't an extensive range of carburetor-tuning



**The pilot's view of the Turbo's cockpit features an FZ750 instrument panel. Note turbo-boost gauge partially hidden by ignition switch.**

that 18-inch hoop from a 1985 FJ600 would mount right up with the FZ fork, axle and spacers.

"The front rotors have been misidentified by nearly every-one," chuckles Enderle. Although the brake discs are Yamaha components, in their intended role they're hidden from view, located under bodywork at the rear of Venture Royale tourer. Their carrier bolt pattern

matched that of the FJ wheel, but Enderle put in some time at a lathe, narrowing the flanges on the wheel to obtain the proper offset so the rotor would fit between the fork legs. A pair of four-piston FZR 1000 calipers are attached to the fork sliders with brackets fabricated by Enderle.

Matching the spoke pattern of the front FJ600 wheel, the rear wheel is of Seca 900 variety, and mated to the Turbo's driveshaft with little difficulty. But adapting the 900's rear-disc-brake system required more modification and fabrication.

To get a feel for the project's styling, Enderle began hanging plastic from various models on the chassis. The final outcome is topped by an FZ750 fairing, which blends nicely with the standard Seca 650 tank, tail section and sidepanels.

"It's fun to ride, docile in normal operation, but very responsive when on the boost," states Enderle. "Now, it's just a matter of stretching a Seca 900 motor to 1000cc, adding an upside-down fork, Marci wheels, single-shock rear suspension, twin turbos.....

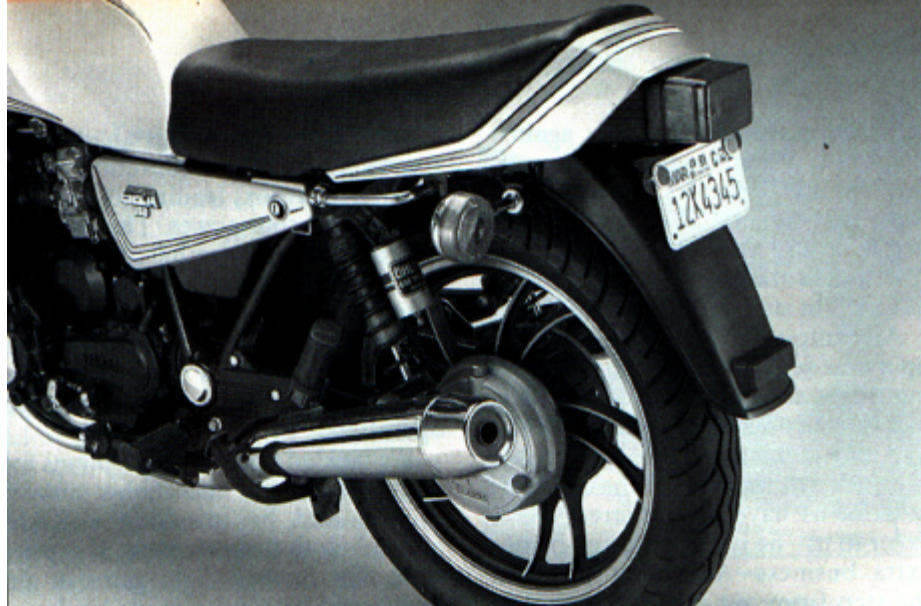


**Painted black with gold pinstripes to mimic the John Player Special F-1 cars and racebikes,**

**Bruce Enderle's home brewed Seca takes to the street rolling on Dunlop road racing rain tires**

Enderle's Parts-Bin Special, it seems, will be a never-ending project.

*Don Canet*



## CW PROJECT

parts for the stock carbs, but, fortunately, none were needed. I removed the soft aluminum plugs covering the idle-mixture screws on top of the carbs and opened the screws seven-eighths of a turn each. That adjustment not only smoothed the idle, but richened the mixture through the quarter-throttle position. The end result was crisp carburetion and a little more oomph in the midrange portion of the powerband.

Why no 4-into-1 aftermarket exhaust? Well, Mr. Editor Edwards didn't want one (it's his bike) and the XJ650 doesn't need one. Aftermarket exhaust manufacturers have known for some time that it is very difficult to make more power than stock Japanese exhausts without letting their systems get outrageously loud. I know of no aftermarket system that makes more power than stock, at the same sound levels.

We also didn't mess with our XJ650's ignition system. One of the first of the then-new, all-electronic types, it has no mechanical advancer to wear out as points-type and early electronic ignitions did. The XJ can benefit from hotter coils, but in general terms, the stock ignition is fine and needs no attention beyond the occasional sparkplug change.

Points-type ignitions from the late 1970s tended to deliver low energy, which would affect how well an engine started and ran. Perhaps the worst offender was the original Honda 750's ignition. If you've got a bike with a points-type ignition, consider replacing it with an aftermarket electronic system, together with hotter coils. I've had good luck with the KV Products Dyna-S ignition, which has proven itself reliable. And

*Evident here are the modified seat, Metzeler tire and Ohlins shocks. Chrome and painted plastic have held up well despite outdoor storage for half of the Seca's life. Besides chassis and engine mods, the bike was treated to a top-of-the-line Yuasa Yumicron battery, purchased at a local dealer.*

since all the system's electronics are located on a plate that replaces the original points plate it is easy to mount. Electronic ignitions almost completely

eliminate ignition maintenance (you still have to replace plugs and lube the advance mechanism) and are worth their cost in convenience alone. However, it was the weak coils on many older bikes that gave the most trouble. Both Andrews Products and KV Products make more powerful replacement coils that when combined with an electronic ignition, will completely update your bike's ignition system.

As a regular reader of Cycle World, you are no doubt aware that what has gone around is coming around again. We are beginning to see new, standard-style motorcycles with many of the same virtues as the XJ650 and bikes of its era. However, the admission price has gone up during the past decade. True, there are some new-bike bargains to be had, and a showroom-fresh model has the significant advantage of coming with a warranty, but it'll still cost more than a renovated used bike, and so will its insurance. So, if you find a bike like our XJ650 that is in good condition and it suits your needs, buy it, fix it up and ride it. Affordable, comfortable and reliable, think of it as a deal on wheels.

### SUPPLIERS

#### Kal Gard

16616 Schoenborn Blvd.  
Sepulveda, CA 91343  
818/894-3615  
Fork oil: \$4.15/pint

#### K&L Supply

1040 Richard Ave.  
Santa Clara, CA 95050  
408/727-6767 (dealers only)  
Steering-head bearings: \$47.50

#### K&N Engineering

561 Iowa Ave.  
Riverside, GA 92502  
714/684-9762  
Air filter: \$26

#### Metzeler Tires

144 Railroad Ave. #125  
Edmonds, WA 98020  
206/348-4000  
Front tire: \$97  
Rear tire: \$118

#### Noleen Racing

2141 E. Philadelphia Unit T  
Ontario, CA 91761  
714/947-5773  
Ohlins shocks: \$383/pair

#### Performance Research Organization

1194 Shetland Way  
El Dorado Hills, CA 95630  
916/933-4166  
Ferodo brake pads \$23/pair

#### Progressive Suspension

11129 G Ave.  
Hesperia, CA 92345  
619/948-4012  
Fork springs: \$56

#### Spec II

9812 Glenoaks Blvd.  
Sun Valley, CA 91352  
818/504-6364  
Telefix fork brace: \$99  
Disc drilling: \$40/disc

#### Russell Performance Products

6301 E. Alondra Blvd.  
Paramount, CA 90723  
213/602-1202  
Brake lines: \$97

#### Yuasa-Exide Battery Corp.

P.O. Box 14205  
Reading PA 19612-4205  
215/378-0533  
Battery: \$53