EML

A High-Performance Sidecar For Purists

RODE TEST 1270 MILES

by JIM WOLCOTT

It's unfortunate that sidecar rigs bear any resemblance to motorcycles. It encourages motorcyclists to think of sidecars as just another way to ride a bike, a concept that is misleading, at best.

In fact, a sidecar rig is a hybrid — half motorcycle, half automobile. You sit up high on the seat and operate motorcycle controls for brakes, shifting, and clutch. The handlebars control the direction of the vehicle, but there's a big difference: a motorcycle is counter-steered (handlebars are pushed away from the direction of the turn), while a sidecar rig is steered (like riding a giant tricycle). Since that third wheel makes leaning into turns impossible, sidecar operation has a distinctly automotive aspect: a rig is steered through the corners — just like a car.

Okay, so far so good. Let's take that a step further: not only is there a great deal of difference between sidecaring and motorcycling, but there is a great deal of difference between sidecar designs as well. The same is true for cars, of course; there are different designs for different purposes. For example, it wouldn't make sense to try to drive A.J. Foyt's Indy racer on the Pennsylvania Turnpike. This specialization extends to sailboats, airplanes and virtually any kind of vehicle which is capable of transporting people. Whether it flies floats or rolls, there are trade-offs and compromises which relate to the vehicle's intended purpose.

Sidecars are no exception. Different sidecars are designed with different goals in mind and there are trade-offs involved. Generally speaking, there are three varieties of sidecar rigs.

First are the racing sidecars — the machines designed to win races and do nothing else. Since these vehicles aren't even remotely street legal, they will be excluded from this discussion.

The second category is for the bolt-on sidecars. The vast majority of three wheelers running around on the streets

It's easy to imagine other times and places when riding an EML.

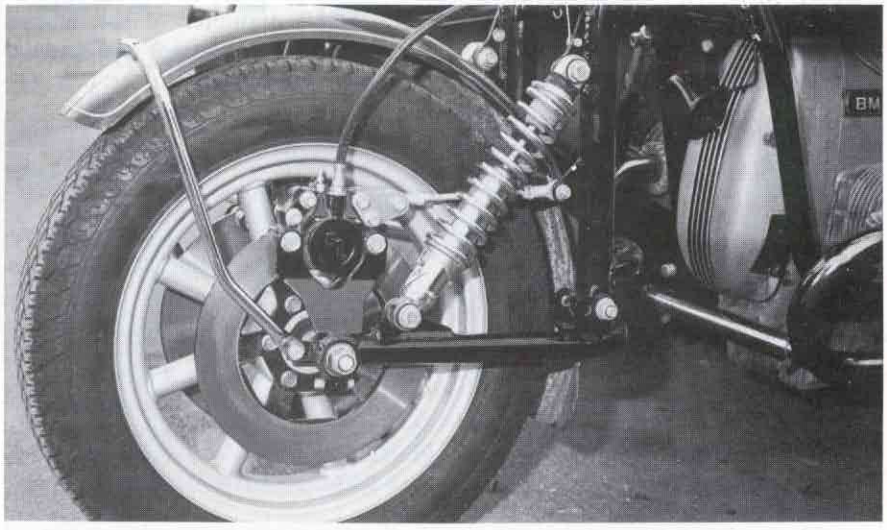
belong in this niche. These rigs make use of garden-variety motorcycles for the left-hand side of the vehicle; most are little more than bolt-on chassis-and-wheel kits which convert a two-wheeler into a three-wheeler. Though they are extremely popular and relatively inexpensive, there are a couple of problems with this approach. Since motorcycles and sidecars steer differently, the two vehicles require a different steering geometry. Also, the tires must deal with automotive cornering forces, something that motorcycle tires aren't designed to do. But perhaps the most important consideration has to do with the frame of the motorcycle.

Currently, the name of the game in motorcycle design is to save weight. It's no secret that the R&D teams don't miss a trick in this regard. Computers are employed in motorcycle frame design to produce maximum strength with minimum weight. Tag a sidecar onto a modern motorcycle and that wonderful computer-conceived frame is forced to cope with stresses it was never designed to handle. Things were different a few years ago, when motorcycle frames were massive steel affairs with generous bracing and robust cast-lug construction. Some were even equipped with built-in sidecar mounting lugs. No more. Today, motorcycles are designed to be *just* motorcycles, and *most* motorcycle manufacturers specifically forbid fitting a sidecar to their product.

Which brings us to the category which makes the most sense: sidecars which are designed and built, from the ground up, to be sidecars. Such designs acknowledge the important differences of three-wheelers as compared to two-wheelers. Curiously, this category contains a mere three entrants available in the United States: the Soviet-built Dnepr (imported in this country as the Neval), the evergreen Harley-Davidson, and the EML. Of these three, only one qualifies as a sporting, high-performance touring vehicle: the EML.

EML builds their sidecars in the Netherlands, producing some 2,500 street-going sidecars per year. Their sidecars are available in three models: a double-wide Family Tourer GT, the EML Sport S, and the topic of this discussion: the Tourer T. For these three models, EML offers kits to attach them to various motorcycles which they feel have sufficiently strong frames for sidecar use. When it came to BMW motorcycles, the frames proved inadequate for the weight and stress of a sidecar. Rather than sidestep this marque, EML started from the ground up with a different

Stability at speed is exceptional — but easily upset by ridges in the pavement.



Leading-link front suspension resists flexing due to cornering forces. Note EML-manufactured disc brakes.

frame, wheels, brakes, front suspension — the works.

This is what makes the EML/BMW combination so interesting. The only BMW components used on the rig are the engine/transmission package, the seat and gas tank, the gauges and various electrical switches. That's it. *Everything* else is designed for, and dedicated to, sidecar use.

Starting at the front, the EML sports a leading-link suspension (known as Earles forks in the good old days). Telescopic forks can't effectively handle the twisting forces generated by a sidecar during cornering. The leading-link design has far greater lateral stability than the telescopic-fork design, and effectively keeps these twisting forces under control. Of course there is an additional benefit: a different front suspension can have different geometry — which makes that suspension more suited to sidecar stability.

There's another benefit to the leading-link design. When the brakes are applied, the stopping forces tend to *lift* the front end rather than collapse it. Think of it as anti-dive due to braking leverage. The old series BMWs featured this Earles fork construction, and the effect was the same for those bikes (which is what makes them sought-after sidecar machines). In the case of the EML the leading-link design is well balanced. Application of the front fork brake results in neutral stops, without the front end lifting or diving.

This front suspension is attached to an EML-built frame which is substantially beefed up relative to the stock BMW unit. Since the arrangement of the frame tubing is similar, it takes a sharp eye to detect that the frame isn't

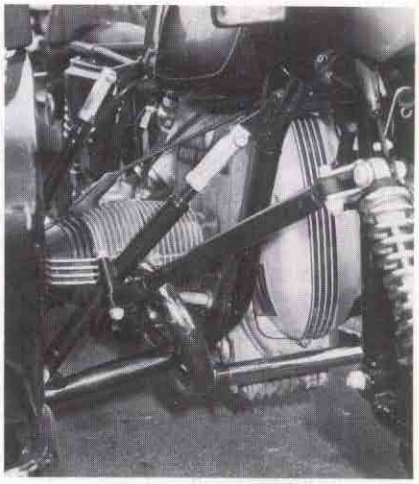
BMW equipment. Welds and paint are close to flawless.

Which brings us to the last and perhaps the most important difference of the EML rig: the tires and wheels. Owing to the nature of the automotive-type forces involved in steering the rig, the EML is equipped with 15-inch radial automotive tires. As a result, the EML has light and quick steering...and it sticks to the road like glue. A free bonus is the fact that since the tires are adapted to sidecar stresses, and since a sidecar rig is much lighter than a car, these tires will last upwards of 30,000 miles! The car wheels are also a bit smaller than the stock BMW motorcycle wheels. This has the effect of gearing the bike down, which helps offset the added weight of the sidecar assembly.

What else is included in the EML package? Four EML-manufactured disc brakes — two on the front wheel, one each on the rear and sidecar wheels. Koni shocks handle the suspension for all three wheels, and there are special turn signals, brake and running lights, seat, tonneau cover and a complete collection of hardware to put the rig together.

With all the theoretically superior componentry going for it, what's it actually like to drive an EML?

On a mountain road, the EML is a sheer delight. No matter how tight and twisty the roads become, the steering is always light, progressive and predictable. In comparison with other sidecars, there is no comparison. Superior steering and handling enables the EML to run away from any other production sidecar rig. As might be expected, the suspension is sportingly stiff (to suit a sporting vehicle), but nothing that could be classified as uncomfortable. The small diameter of the wheels means that more bumps and undulations are transmitted to the driver— noticeable only if you're looking for them. The brakes are powerful (though they squeal like a banshee when applied), and there's no pull left or right when under way. All in all, it is a balanced and well-designed machine.



Frame is enormously strong, and dedicated to sidecar use. Steering damper fitted to the front suspension prevents low-speed wobble.

I have a few complaints, the biggest having to do with low-speed operation and parking maneuvers. Below approximately five mph, the extra width of the radial tires means you're physically scrubbing the front tire against the pavement to steer it. It takes some getting used to. The small diameter of the radial tires means the stock BMW speedometer is virtually useless; at highway speeds, the clock reads a full 15 mph higher than you're actually traveling. And those radial tires (which by design tend to flex when cornering) seem to slavishly follow ruts and ridges in the road surface. For example, the ridges in the highways of Southern California (caused by earthquakes) were *very* exciting to drive over, and would actually cause the rig to bob and weave. Under these conditions, driving an EML is a full-time job — one which also takes some getting used to.

To be fair, these are minor niggles about an otherwise excellent machine — especially about a machine which is in a class all by itself. The fact is, the EML/BMW is the highest performance, best handling sidecar that money can buy. Period.

Here's an interesting look to the future: there's an EML dealer in Germany who has convinced the BMW factory to supply (with full warranty) engine and transmission units specifically for new EML sidecars. At this time, the project is entirely experimental, but it could well lead to BMW offering a

A BIBLE FOR SIDECARISTS

Popular enthusiasm for sidecars has fluctuated widely over the years. We appear to be on an uptrend; a new wave of interest in sidecars is evident in the sport of motorcycling. As always, the rediscovery of the wonderful third wheel has led to a rash of published information on the subject. As always, most of it is coming from recent converts who can't wait to share their experiences. How wonderful sidecaring is, how they really got scared when they turned right, and how everyone should follow their instructions on "How To Drive A Sidecar."

The enthusiasm is worthy of praise, perhaps, but the questionable advice often contains an alarming potential for disaster.

What never seems to occur to the eager novices, is that sidecars have been around almost as long as two-wheelers. Sidecar enthusiasts of a more durable and knowledgeable nature have been driving their combos steadily onward through all the here-today-gone-tomorrow fluctuations of three-wheeling

One of the most experienced members of this hard-core group of dedicated sidecarists, is Hal A. Kendall.

Hal is the executive secretary of the United Sidecar Association, a non-profit organization which represents and serves the sidecar enthusiast in much the same way that the AMA serves the motorcyclist. Hal has been actively involved with sidecars for 30 years; his articles and books on the subject have been published internationally; he is a recognized authority and a highly experienced researcher in the field of sidecar operation.

What is more important: Hal has written the definitive operator's manual for sidecar drivers. It is accurate and informative, and it presents the proper instructions for safe efficient sidecar operation and maintenance in a comprehensive, easily read format.

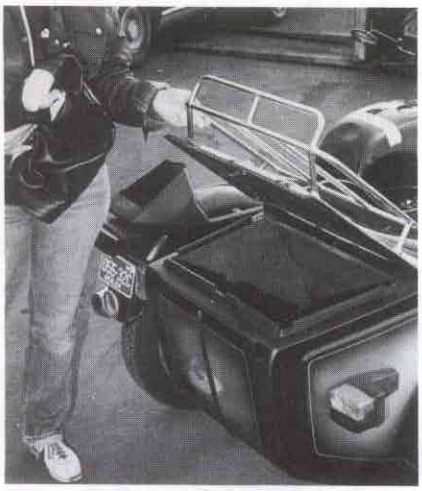
If you're interested in sidecars and you'd like to avoid unnecessary lumps in the learning curve, *Road Rider* recommends two things:

(1) Send for a copy of Hal Kendall's "Sidecar Operator Manual."

(2) Take a large dose of salt with just about anything else you read concerning sidecar operation unless the writer's credentials come up to snuff.

The "Sidecar Operator Manual" can be obtained by sending a $5.00 donation to Ken Anderson, USCA Book Officer, 4338 Red Coat Road, Rockford, Illinois 61109.

While we're at it, we should also mention the monthly publication put out by the USCA. The *Sidecarist* is both informative and entertaining. An excellent way to stay in touch with the sport. A subscription is yours when you join the association. For application information contact: The United Sidecar Association, Inc., Membership, P.O. Box 8119, Van Nuys, California 91409.



There's plenty of storage space for any reasonable touring load. Luggage rack is optional.

Automotive radial tires are fitted to all three wheels — rims are spoked steel. Note separate disc brake for sidecar wheel.

genuine factory sidecar rig — one very similar to this EML.

The EML sidecar is imported by Sidecar Restorations. The unit is also available in kit form, so if you've got a crashed BMW in the garage you don't know what to do with, the sidecar conversion is an attractive proposition. The complete EML Tourer T kit runs for $5,450; it can be installed in a weekend's time with ordinary hand tools. If you're after a turn-key "ride it away" sidecar, the folks at Sidecar Restorations will put one together and paint it to your specifications for about $9,500. This might sound like a lot of money, but in terms of price, the EML falls between the other two dedicated sidecar vehicles currently available. In addition, kits adapt EML components to Honda, Kawasaki and Yamaha shaft-drive motorcycles.

These kits use the stock motorcycle frame (icch!) but include the superior leading-link front suspension.

For further information on the EML dealers, as well as a specific breakdown on pricing and options, contact: Sidecar Restorations, 115 S. 20th St., Dept. RR, St. Louis, Missouri 63103.