

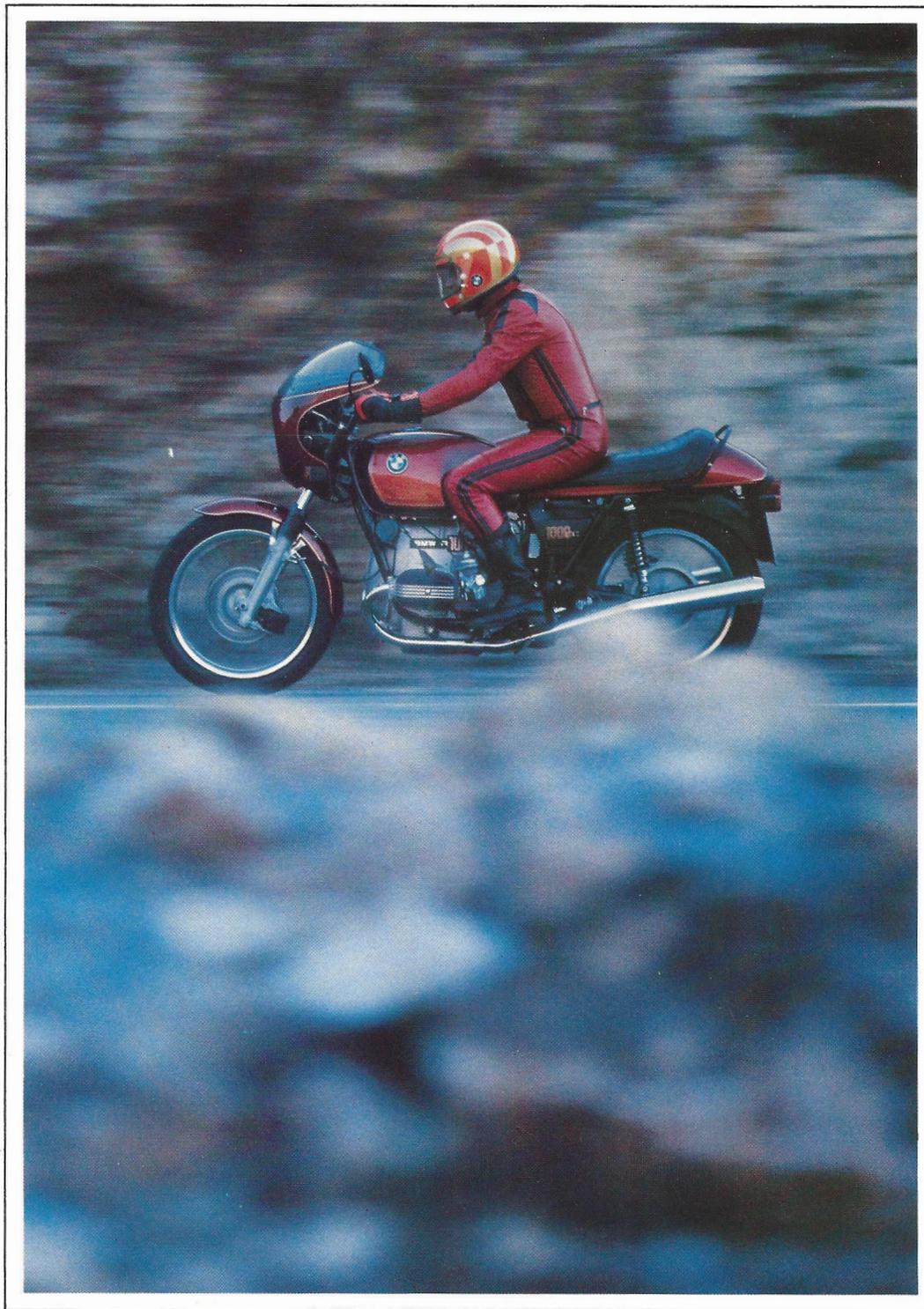
FOR THE JOY OF RIDING

# MOTORCYCLE



Spring 1978

JOURNAL



# For The Joy Of Riding

Exactly how one gets down the road . . .

Just as the 1978 riding season gets underway, we find ourselves deluged with a dazzling assortment of new motorcycles. Yes, there are new BMW's (the R80/7, for instance), which are introduced in this issue. But there are many, many others, including singles, twins, threes, fours, and even sixes. There are two-strokes, four-strokes, rotaries, air-cooled, fan-cooled, water-cooled. Buyers can choose between shaft drive, chain drive, belt drive, pushrod, single-overhead-cam, double-overhead-cam, two-valve, three-valve, four-valve, three-speed, four-speed, five-speed, six-speed and automatic transmissions. The choices are endless and where do we turn for guidance?

To motorcycle dealers mainly, but also to friends and other enthusiasts, to street talk, to race results and record attempts, to sales literature and motorcycle publications. Eventually we hope to distill an objective, accurate and unbiased picture of what's out there, then match it to our own needs, our own style of riding.

*That*, of course, is the key. Our own style of riding. Like they say, know thyself. Magazine test reports rhapsodize over quarter-mile ET's, maximum speeds of 130+, minimum lap times on closed-course racing circuits. Unquestionably performance is a very large part of what motorcycling is all about. But sometimes you wonder if those test riders ever really use a motorcycle, service it, live with it day-in and day-out. Most of us don't get three new test bikes every month. Most of us kind of like to get close to a bike. And some of us even hang on to a bike for *years*.

So read with a careful eye, listen with a judicious ear. You'll be happiest with your choice when you

know exactly how *you* like to get down the road.

And speaking of which, some BMW enthusiasts in Europe recently decided they wanted to get down the road over fixed periods of time faster than anyone on a motorcycle ever had. A mixed German and Italian team got some help from the BMW factory to fix up a new BMW R100RS. Modifications were very few: high-compression pistons, large-capacity oil pan, slightly lowered frame, closer-ratio gears, taller final drive ratio, and megaphone exhaust.

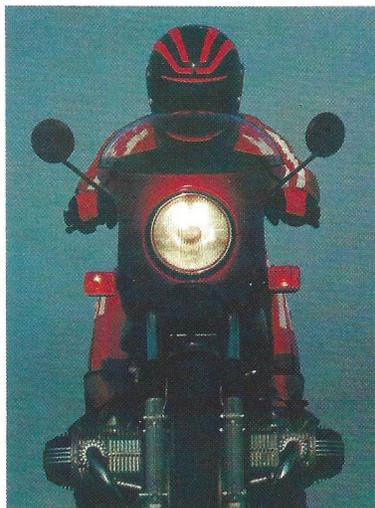
The team gathered for its record attempt at Fiat's 12.6-km Nardo Test Circuit in southern Italy. Under supervision of an FIM official, the first rider eased out the clutch just at dawn. Twelve hours later, the course shrouded in heavy fog, the team with its mighty BMW R100RS had set four new world records: 10 km at 211.4 kph (131.5 mph), 100 km at 220.7 kph (137.5 mph), six hours at 191.6 kph (119.1 mph), and 12 hours at 190.8 kph (118.61 mph). In twelve hours the team had covered 2,290.4 km or 1,420.1 miles! Not bad for a day's ride.

Two other BMW groups are concerned with getting down the road in

quite a different fashion. This summer the BMW Motorcycle Owners of America will hold its national rally in Rutland, Vermont, from July 20 to 23. Riders from all over the U.S., Canada, Mexico, and the Americas are expected to attend. For information contact BMWMOA at P. O. Box 74, Newark, CA 94560. And a new group has formed, associated with BMWMOA, for ladies only. Called the Ladies BMW Motorcycle Association, it has a national membership and can be reached c/o Ms. Alice Price, 1492 Nilda Avenue, Mountain View, CA 94940.

BMW enthusiasts seem to be determined to flesh-out their pastime with the accoutrements of brand loyalty and, of course, BMW is flattered. On the back cover of this issue are assorted items that let others know your commitment to what you ride. The famous BMW propeller symbol is reproduced on jacket patches, lapel (or cap) pins, beer steins, tank bags, touring gloves, posters, and other items. All of these items can be purchased or ordered at your BMW dealer. In addition there is a brand new, extraordinarily attractive BMW calendar for 1978 (shown below). In full color, it also is available from your dealer, or for \$6.95 postpaid from Butler & Smith, Inc., Norwood, NJ 07648.

Spring is the time when thinking about getting down the road converts to actually doing it. Get your bike out of the woodshed, polish it up, tune it, and take off. America has had another severe winter almost everywhere. Now is the time to make your BMW earn its way by reacquainting yourself with the joy of riding.



*John P. Conway*

*Front Cover: "Special Editions" and speed, but how do YOU ride?  
Rear Cover: Some of us take our BMW enthusiasm seriously.*

# Carol Plant— A Lady Who Can Tell You About BMW's

Most of us begin to think of ourselves as seasoned veterans when we can tell you about motorcycling in the early 1960's. But then there's Carol Plant, a highly respected "statesperson" of the sport, who vividly recalls motorcycling in the early 30's. And to this day she coolly knocks off 18,000-or-so miles per year on her 1974 BMW R90/6!

Carol loves bikes and bike people but she mostly rides alone. She says she'd "rather look at the view than the rear fender of the bike ahead." A typical winter trip for Carol is roundtrip by bike from her Santa Clara, California, home to Houston, Daytona, or Acapulco, Mexico.

Not that she's antisocial; Carol Plant has been active in organized motorcycling for many years. She is presently a member of the BMW Club of Northern California, South Coast BMW Riders, BMWMOA, AMA, Canadian M/C Association, Retreads, W.I.M.A., Ladies BMW M/C Association, California M.O.-R.E., and Helping Hands. She was active in the founding and early days of BMWMOA and was chief organizer (Rally Marshall) of their most recent annual get-together at Colorado Springs.

As the picture shows, Carol likes to ride in leathers for safety and weather protection, but she's certainly no stranger to dressing up. Note the very handsome vests worn by the newly-formed Ladies BMW M/C Association. Carol made their banner and a dozen vests for her local chapter. But she's serious about cycle safety, and always wears a helmet, eye and foot protection, along with good riding gloves. She says she has never had an accident or major mechanical failure in over 40 years of riding!

And she does cover ground. Three of her four BMW's were sold with over 80,000 miles on the odometer and her present mount passed 50,000 some time ago. She has covered most of the U.S., Canada, and Mexico, but has at least two important targets remaining. She hasn't been to the New England



states and intends to resolve that at the Sixth Annual BMWMOA Rally in Vermont this coming July. Then there's the grand tour of Europe. "I'll go when the time is right and hope that won't be long," she says.

Of the nine motorcycles she's owned, four have been BMW's. The Munich twins weren't readily available when she got her first bike, a Harley 45-inch sidevalver, back in 1937. Her first BMW, an R60, was bought used in 1960. But perhaps her favorite bike was a white R69S, the first '68 model in this country, which she purchased new from Earl Flanders. She fitted it with a handlebar fairing, solo saddle, and saddlebags and frequently rode it to LA's Ascot Raceway on motorcycle race nights. It was still running strong when she sold it with 80,000+ miles.

Great-grandmother Carol Plant tells a story of a young rider on a

Triumph who used to badger her for a street race when the flat-track events let out. Then only a grandmother, she kept stalling him off, but he was determined to see what that gleaming white BMW could do (and he had gotten himself out on a limb with his riding buddies). Finally she agreed. "Okay," she said. "We'll start at that traffic light up there . . . and I'll wait for you in Phoenix."

"Phoenix!" exclaimed the younger rider. He looked at Carol's bike and then his own and rode off quietly in the night toward home.

If Carol Plant is now something of a celebrity as a motorcyclist, she hasn't let it affect her lifestyle. She cooks and gardens and likes to go camping. Give her a wave if she passes you in the Canadian Rockies on her way to New England this summer!



# BMW Choices for 1978 Include 'Special Editions' and the New R80/7

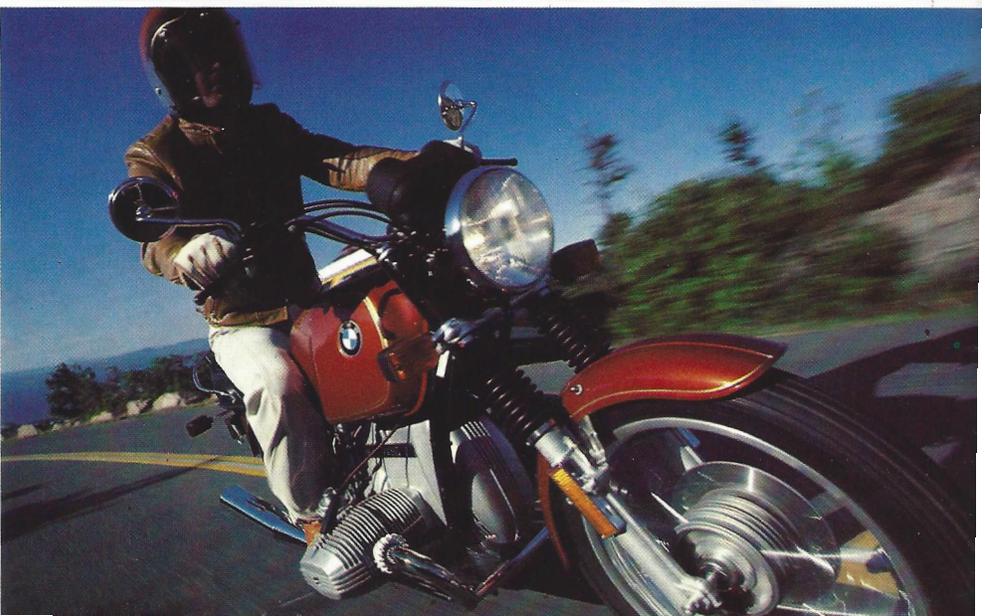
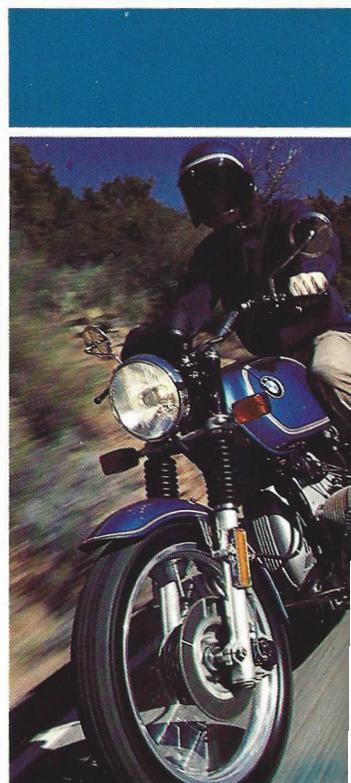
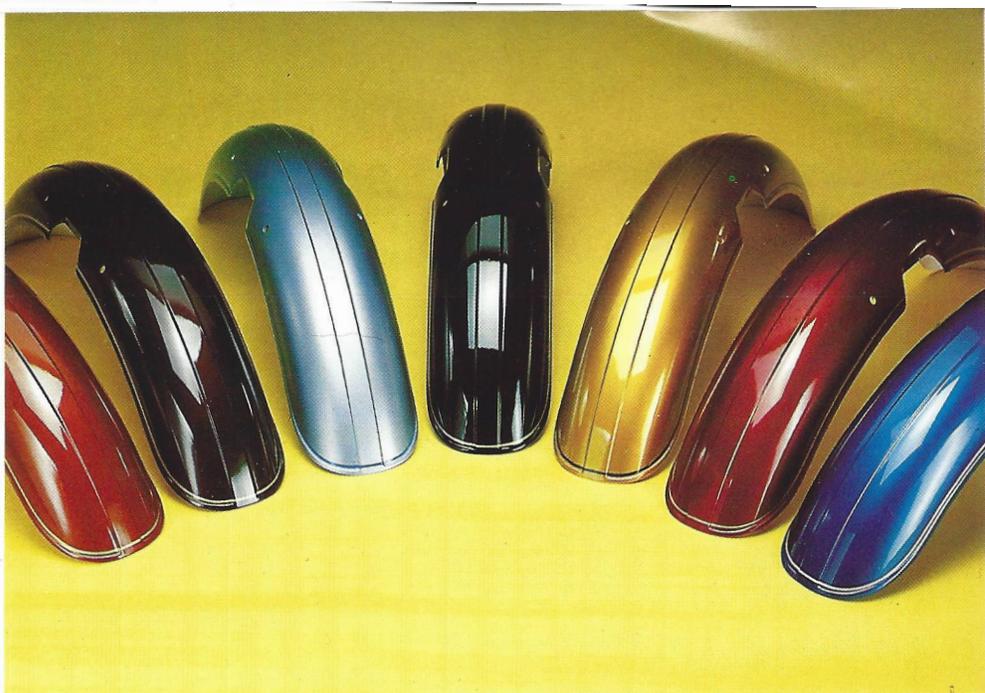
Leading the 1978 model line-up is a new version of the fabulous BMW R 100 RS. Called the R 100 RS "Motorsport", it features a distinctive red-white-and-two-tone-blue color scheme plus such other RS design details as the integral cockpit fairing, unique BMW "mag" wheels, and twin-disc front and single-disc rear brakes. The "Motorsport," of which some 200 units will be made, is the first of several new BMW "Special Editions."

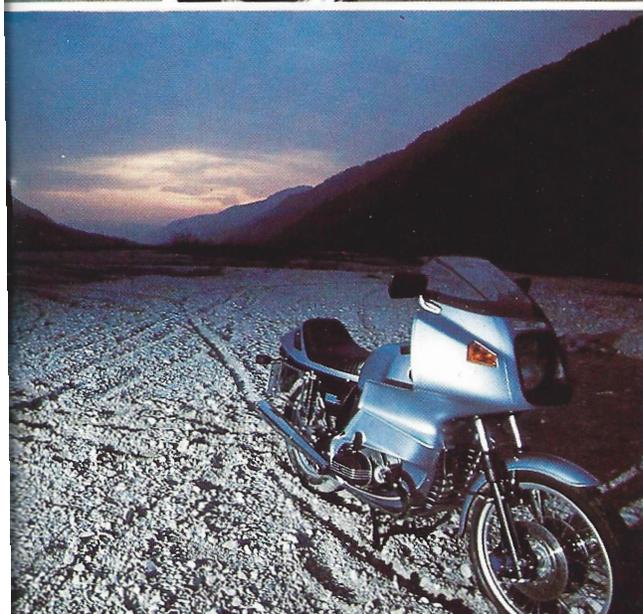
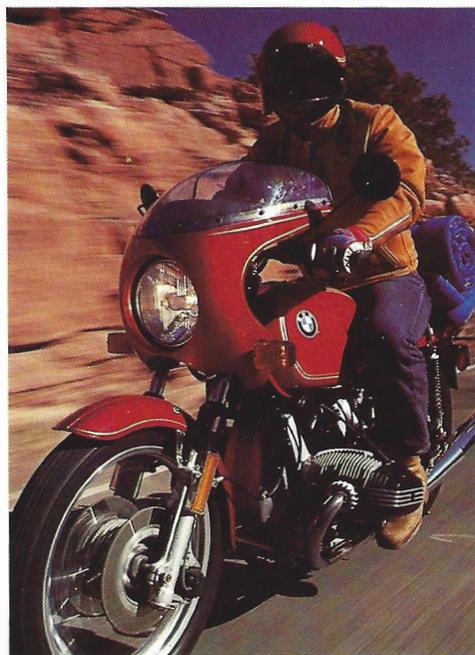
Also in the series are new R 100 S "Sport" and "Touring" models which come in a new "Red Smoke Metallic" color with gold pinstriping. Standard equipment includes hydraulic dual-disc front and single-disc rear brakes, BMW "Mag" wheels, clock and voltmeter. The "Sport" model features low handlebars and a cafe-style fairing, while the "Touring" model comes without fairing and with higher U.S.-style touring handlebars, thus making it suitable for a frame-mounted fairing such as the color-matched "Luftmeister" by Butler & Smith.

A third bike in the new series is the distinctive R 100/7 "Special" which comes in either Red Metallic or Black Metallic finish and features BMW "Mag" wheels, black valve covers, BMW factory safety bars, and saddlebag brackets with integral luggage rack.

Brand new for the 1978 season is the BMW R 80/7 with an 800 cc engine, replacing the former R 75/7 in the BMW line-up. The R 80/7, producing 55 bhp, is not only more powerful than its predecessor but also considerably more flexible, making it an extraordinary all-around touring machine. It comes with BMW's unique perforated-disc front brake and a full-hub drum rear brake. A "Special Edition" of the R 80/7 is also available. Called the "Avus", it features the traditional nonmetallic gloss black finish with blue pinstriping.

BMW enthusiasts examining the 1978 product line will find the usual subtle and not-so-subtle improvements that have characterized BMW design philosophy for over 50 years. Perhaps most notable is a new shift mechanism that places the shift axis of rotation to coincide with that of the rider's foot. The result is easier, smoother shifting that is quieter and more precise than before. Internal (*continued overleaf*)





gearbox changes also contribute to a smoother, quieter, and more precise gearbox in 1978. The so-called "kinematic" gearchange arrangement is available in kit form (part number 23 31 1 237 796) and can be retrofitted to any BMW (—/6, —/7, and "S") with the five-speed gearbox.

The full series of regular models completes the 1978 BMW product line: R 100 RS, R 100 S, R 100/7 and R 60/7. And they come in dazzling colors to fit nearly any rider's preference. The R 100 RS in Matte Silver and a new Gold Metallic; the R 100 S in Red Metallic; the R 100/7 and R 80/7 in a choice of Metallic finishes: Blue, Burnt-Orange, Havana Gold, or Black; and the R 60/7 in Metallic Black.

Instrumentation on the 1978 models has been improved. An electronic tachometer of higher precision has been added and the damping of the speedometer needle has been improved for steadier readings. Legibility of both instruments has been upgraded with non-glare lenses and green scales with white needles. The turn signal indicator has been relocated to bring it closer to the rider's field of view, and an audible indicator has been added to most models to further reduce the possibility of leaving flashers on unintentionally. "RS" and "S" models have an improved, highly accurate quartz clock.

A change dictated by the preference of many riders concerns BMW's motorcycle key system. Most new models are now locked by a single key which operates the fuel tank, ignition, steering and seat locks. On the R 100 S and R 100 RS, a special steel cable lock has been added as an extra anti-theft measure. When not in use, it is carried concealed in the main frame tube.

To many enthusiasts, one of the most striking improvements in the 1978 model line is the addition of "Mag" wheels to the RS and certain "Special Edition" models. Unlike so many cast wheels which have a real ox-cart look, the BMW wheels are light and graceful in appearance, yet tremendously strong and rigid in function. Unfortunately these wheels are still in extremely short supply and cannot yet be ordered as accessory items. Like other detail improvements, they represent another step in the continuous evolution of the BMW product line.

## Understanding the BMW Constant-Velocity Carburetor

In recent years several BMW models have come equipped with a unique and sophisticated new carburetor: the Bing Constant-Velocity (or CV) Carburetor. Many motorcyclists have been impressed by its reliability and the unusually smooth transition in power it produces when twistgrip throttle openings are changed. But few riders understand the principles by which it operates.

The single greatest advantage of a CV carburetor is that it feeds the engine only as much fuel/air mixture as the engine demands, never more. Whacking open the throttle of a conventional slide-type carburetor often causes an engine to stumble and falter—just when maximum acceleration is needed. On a CV carb, opening the twistgrip merely opens a butterfly valve, exposing the carb to the full demands of the engine. The carburetor adjusts itself to meet those demands. The response is quick but never overmuch.

In simplified form, the CV carb works by varying the pressure differential above and below a piston, which in turn varies the venturi opening like a conventional slide. The engine presents the carburetor with a vacuum, which draws air (and/or mixture) under the slide. The motion of the air under the slide creates a partial vacuum (pressure drop) there, and this is transmitted through passages to the enclosed volume above the piston. The volume below the piston is vented to the main intake tract, which is at a higher pressure. The greater the differences between pressures below and above, the higher the piston rises, the larger the venturi opening, and the more mixture the cylinder receives.

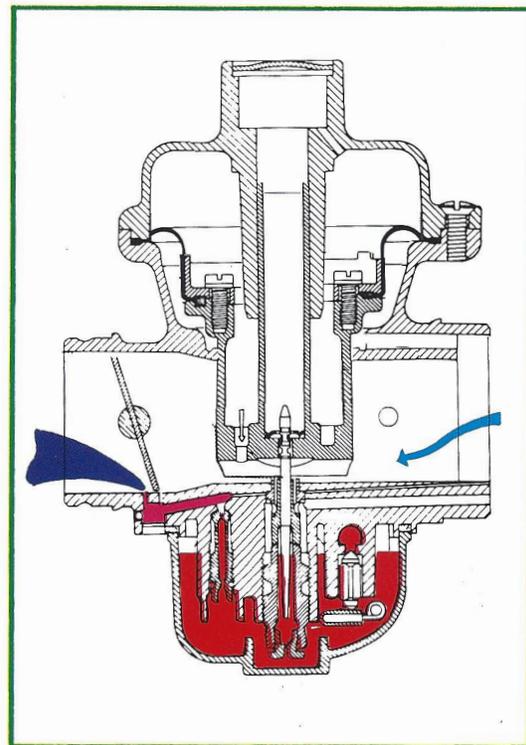
Seen in the diagrams on these pages, the Bing CV carburetor begins at the left at the cylinder intake manifold. Then comes the butterfly valve connected to the twistgrip by a cable, then the venturi-slide piston. A flexible diaphragm separates the low-pressure (vacuum) volume above from the higher pressure volume below. At the bottom of the slide is a tapered needle which

passes through the needle jet and stops just above the main jet. To the right of the piston venturi is the air-intake passage.

The three sketches illustrate the three main air/fuel metering systems at work in the Bing CV carb; the idle system, the needle-jet system, and the main-jet system. A fourth, the cold-start system (not shown) is centered in an enclosure at the side of the carb.

The idle system (extreme left-hand sketch) operates completely independently of the main-jet system. Fuel is drawn from the float-bowl through the idle jet to pre-mix with air from the tiny idle air passage. This mixture is mixed again with air that slips under the butterfly valve in the main airflow through the venturi (almost closed). A transition passage is uncovered when the butterfly is just partially opened to smooth out the transition from idle to the needle-jet system.

The needle-jet system operates at part-load and part throttle. The



tapered needle exposes an increasingly larger annular area as the slide rises. Eventually the area is larger than the main jet itself (at the bottom) and the main jet then controls mixture. The volume of air, the volume of fuel and the resulting volume of mixture drawn by the engine all depend on engine speed and load. The butterfly valve simply allows the rider to superimpose *his* needs for engine performance on those of the engine itself, by limiting the amount of engine vacuum "seen" by the carb.

In the sketches, red represents fuel, which is concentrated in the floatbowl, and blue represents air. Purple represents atomized fuel/air mix. Note that for all three systems there is at least some pre-mix of fuel and air before this pre-mix hits the main venturi passage.

Unlike some slide-type carburetors, the Bing CV carb has no accelerator pump. Accelerator pumps generally provide a brief mixture enrichment during sudden throttle openings for increased power and hence acceleration. They are usually mechanically operated rather than vacuum operated. But the principle of the CV carb produces an effect very similar to that of the more traditional pump.

Because of inertia, the piston of the CV carb does not rise as quickly

as air velocity increases when the venturi is suddenly exposed to greater vacuum (throttle opening). The temporarily disproportionate air speed therefore creates an even lower pressure in the venturi, which draws off more fuel from the needle/main-jet, enriching the mixture. The result is a very satisfying surge of acceleration without the mechanical complexity of an accelerator pump.

In practice, the CV principle has proven to be one of the best working carburetor concepts ever for motorcycles. This Bing CV carb stays in adjustment, wears extremely well without changes in mixture strength, is fully up to the rigors of the motorcycle environment, and is mechanically simple and almost impervious to breakdown.

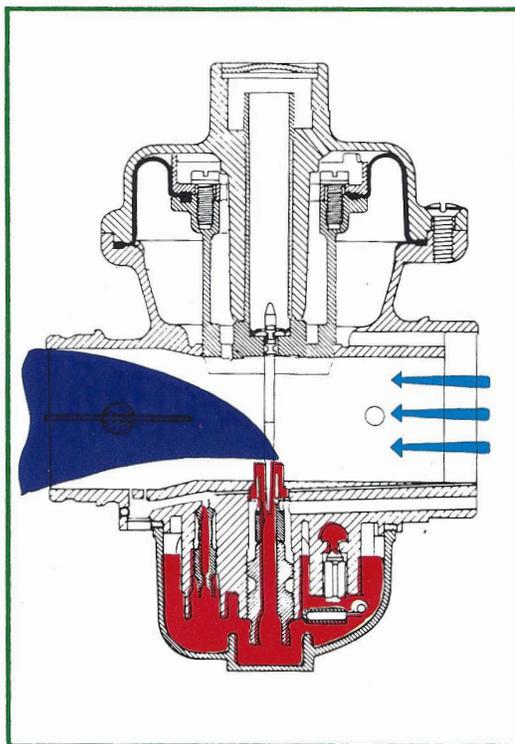
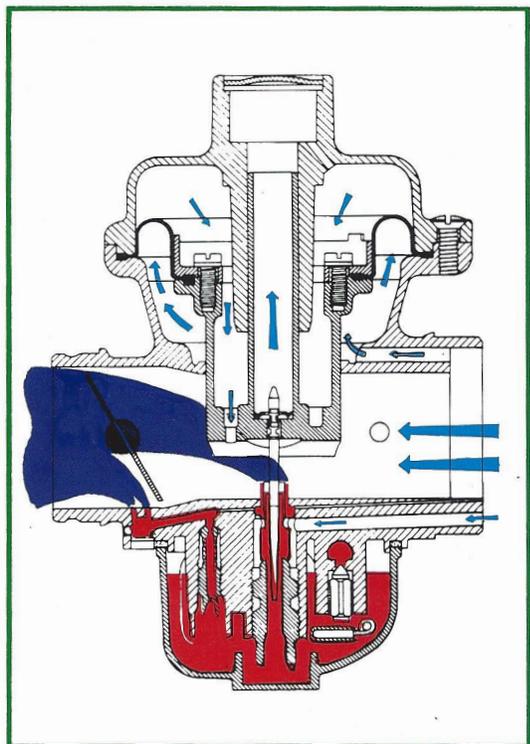
About the only service question that arises in the use of CV carbs is the need for re-adjustment when an inexperienced person attempts to "tune" them. For the most part, as we have seen, they self-adjust to the needs of the engine. But, because their four metering systems overlap to some degree, tampering with one can affect the others.

One situation that can develop in use, however, is the inadvertent introduction of moisture into the carburetor. This happens when water is sprayed or splashed on vent or

overflow orifices. It can also happen when the moisture content of the air in a cold crankcase condenses in the interior of the right-hand carburetor. The moisture can mix with fuel elements to form a milky substance, usually in and around the needle jet. The result is balky carburetor and engine performance and the cure is to disassemble and clean the carburetor, wiping the parts with solvent, blowing jets and passages clear, and drying it thoroughly before reassembly.

Prevention is, of course, the best cure. Owners should avoid spraying the Bing CV (or any other) carburetor directly with a water jet. In cold weather, short trips that do not permit thorough warming of all engine components should be avoided. Like the rest of a BMW, the Bing CV carburetor thrives handily on hard work and will perform tirelessly if well treated.

An occasional imbalance between the left and righthand carburetors is usually the result of unavoidable throttle-cable stretching. Balance is re-established by cable adjustment and (sometimes) idle adjustment. Your BMW dealer has the right equipment and know-how to get the job done spot-on. Dealers in high-altitude areas can also adjust the Bing CV carb for optimal performance in thinner atmosphere.





BMW - Freude am Fahren



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PHOTO: ROB PATTERSON