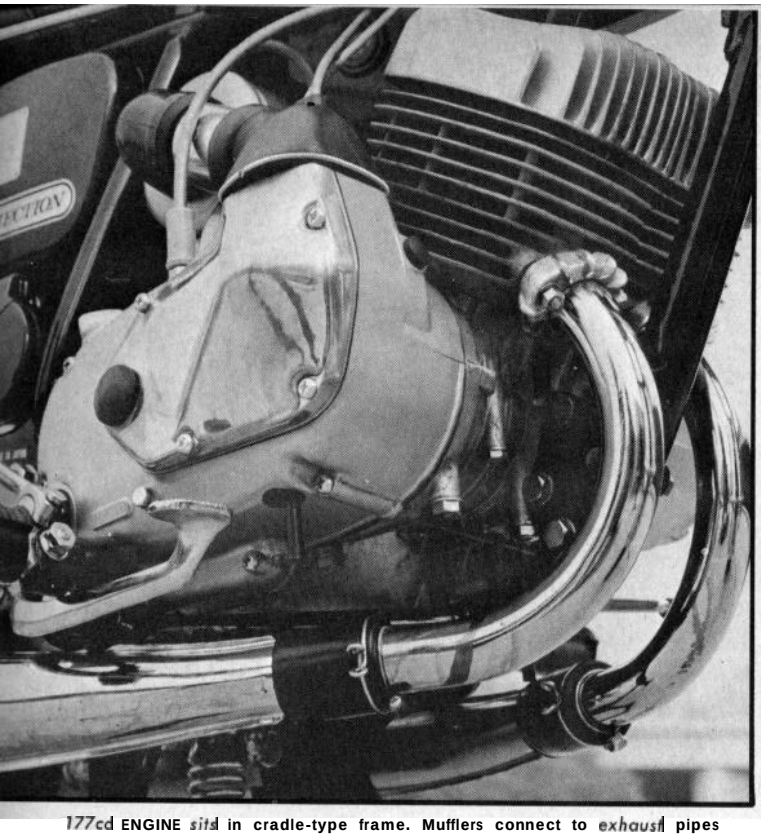
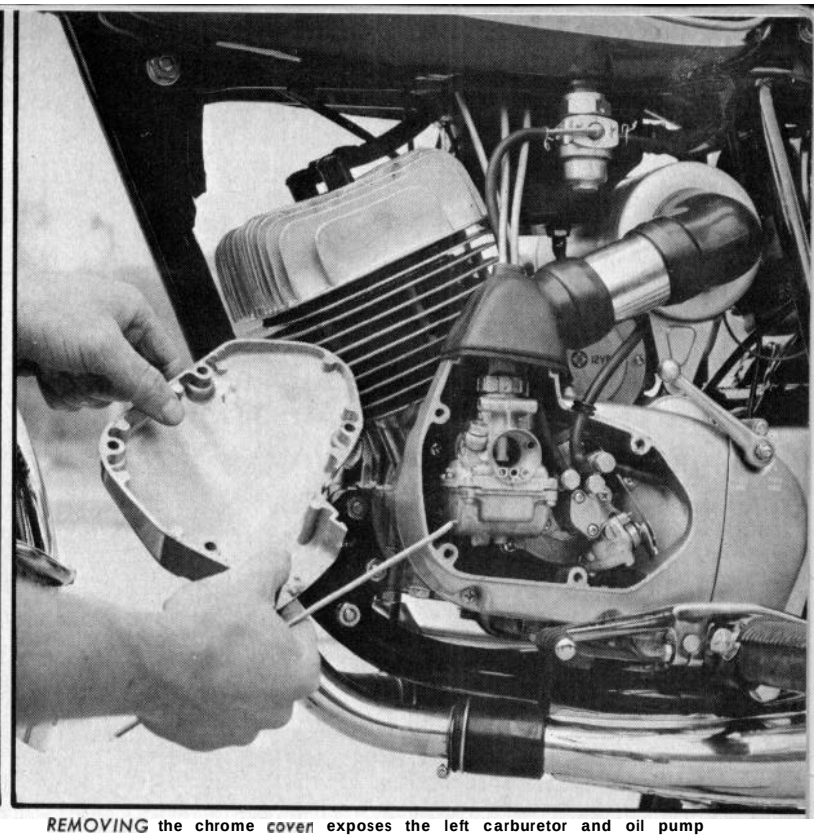
BRIDGESTONE 175cc "Dual Twin"

Cycle Road Test #148



177cc ENGINE sits in cradle-type frame. Mufflers connect to exhaust pipes by a plastic coupling. Carburetors ore covered by chrome housing with Phillips-head screws. Note the folding pegs and the breather (small black tube) for carburetors.



REMOVING the chrome cover exposes the left carburetor and oil pump next to it. Cable on oil pump connects to the hand throttle. Side-mounting of the carburetors makes for easy servicing. Oil line on pump connects to the small tank behind the fuel shut-off.

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"The fastest growing name in rubber" building motorcycles? And how they do! Besides being this, Bridgestone is also Japan's leading bicycle manufacturer. The Bridgestone Tire Co. was established in 1931 and began building motorcycles in the late 1950's. Only in the past few years has their motorcycle name become familiar to the people of the U.S. Many still say "Bridgestone? Never heard of it." But not so through the midwest where they are one of the leading popular makes. Rockford Motors (formerly called Rockford Scooter Co.), Bridgestone's U.S. distributor, is located in Rockford, Illinois. The bike was supplied to us by McCulloch Corp. of El Segundo, Calif., the West Coast distributor.

"Dual-Twin"

The name "Dual-Twin" should be more like "Triple-Twin" for the bike has two parallel cylinders, dual carburetors and two rotary valves. Instead of having the piston do the work of a valve (opening and closing the intake and exhaust ports with the piston skirt) a separate disc-shaped valve is used. Bridgestone must have realized this and went all-out to design a lightweight bike incorporating rotary valves. The job of designing one was simplified for them by having already produced a 90cc single with a rotary valve. The Dual-Twin is by all specs a doubled-up 90cc Bridgestone "Sport." Bore and stroke are the same. Many ask "why don't all two-stroke manufacturers use rotary valves?"-the, reason being that it is expensive to design and produce, which increases the overall price of the machine. Another problem with rotary valves is where to place the generator and ignition contacts. These are usually on the ends of the crankshafts but this space is taken up by the rotary valves. A unique method was used to solve this problem. The generator and the ignition contacts were combined into a one-piece unit, and placed beneath the aircleaner behind the cylinders, driven by the center section of the crankshaft. All this is worthwhile because of the higher hp obtained, which results from improved valve timing (over the standard two-stroke method). A third transfer port is used to get a bigger, more balanced gas charge into the cylinders and is located on the inside of the cylinders where the barrels connect to each other.

Enclosed Carburetors

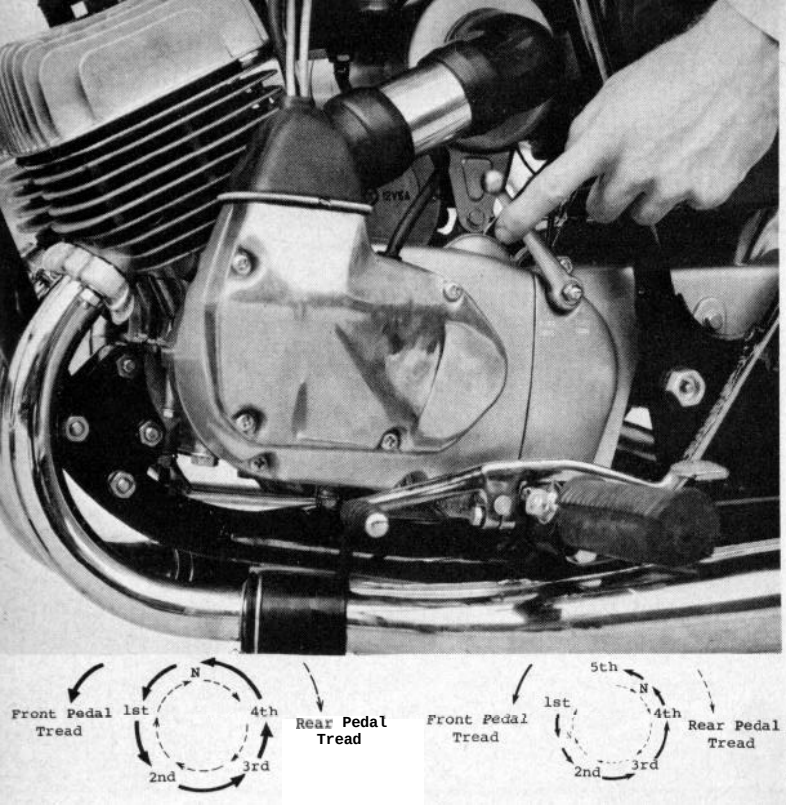
A novel feature of the engine is the fully-enclosed carburetors. Both are connected to a paper-element aircleaner by chrome tubes with rubber couplings. This aircleaner provides a "cold air box" for the carburetors to draw from. An added benefit is that this keeps out dirt and water. They are side-mounted directly to the rotary valves (as in many two-stroke racing machines).

"Oil Injection"

The Dual-Twin is the first Bridgestone model to have an oil-mixing system as a standard feature, It is called "Oil Injection" and the pump is located next to the left side carb. The amount of oil that the engine receives is in direct proportion to how much throttle is applied and engine revs. When the bike is new the manufacturer recommends that additional oil should be mixed manually with the gas to insure proper break-in. We found this not to be necessary. The cylinders are alloy with the barrels chrome plated-this virtually eliminates any chance of piston seizure. The oil reserve is held in a main tank between the frame and gas tank. A small sub-tank mounted above the aircleaner has the necessary "peep-hole" for checking the oil level within. All in all a very neat and efficient system.

"Sport-Shift"

"What's that lever for?" is one of the questions people ask when viewing the Dual-Twin for the first time. Located on the left side of the transmission case is the "Sport-Shift" lever. Leaving it in the forward position you can only use the standard four speeds. Pulling it to the back position engages it in overdrive. Effortless 65 mph cruising is a reality. The overdrive fifth gear extends the top speed of the Dual-Twin to about 80-85 mph. Thanks to the precision-made transmission (and a heel-toe shift lever) down shifting is smooth and positive. Another design feature of the transmission is the rotary shift pattern. When stopping at a traffic light on a motorcycle you have to shift down through all the gears to reach first. Not so with Bridgestone. First gear can be engaged directly from fourth by just depressing the shift lever forward twice. This action brings you through neutral to first gear. Many would appreciate this in situations that call for a panic stop which leaves no time for down-shifting. The Dual-Twin can be started in gear without going back to neutral. Just pulling in the clutch lever does the trick.



"SPORT-SHIFT" lever is easily reached on transmission case. Forward engages it in the standard four speeds, back engages the overdrive fifth gear. Heel-foe shift fever is a handy item. Below photo is a diagram of shifting patterns.

DOUBLE-LEADING shoe broke on the front wheel gives the Dual-Twin good stopping power. Steel rims mount Bridgestone tires. Springs and shocks are rubber covered. A strong brace is used on the front fender, also giving the fork extra stiffness.

Handling and Performance

Overall handling is quite good, thanks to long fork travel and adequate springing, which give a very smooth ride, with-no bottoming. Non-adjustable shocks are used in the rear in conjunction with the swinging arm. Fast cornering is possible with little effort due to nice balance and weight distribution. Tires (Bridgestone, of course) could be of a slightly larger size and would further improve the ride.

Performance is quite good considering the bike's weight of 271 lbs. Thus the engine is developing a true 20 hp and maybe even a little more. Accelerating, shifting up and down, braking, turning, and starting all are exceptionally smooth. All these add up to one important thing: customer satisfaction. This is what will sell this machine.

Finish

The Dual-Twin has an abundance of chrome on the fenders, gas tank, exhaust pipes and mufflers, wheel rims and the shocks. Any other exposed metal is polished. A candy-red paint on the tank, headlight, battery case, shocks and fork highlights the chrome and alloys for a nice appearance.

The seat is not flat but contoured for rider and passenger comfort. Folding pegs front and rear are handy for off the road riding and hard cornering. Clutch and brake levers are alloy and have ball-ends to prevent the hands from slipping off. A choke lever is on the left handle bar next to the horn button and a headlight dimmer switch. The ignition switch is located on the left half of the battery case, and has four key positions: off, on-daytime, on—nighttime (headlight and taillight), and parking lights.

A few things that could be easily improved: a dead spot in the ignition switch between the "on" and "headlight" position. If the key is not turned fast enough at night to the headlight position it hits the dead spot and shuts the engine off. A mesh strainer in the neck of the gas tank filler prevents seeing the gas level. A gas gauge is needed. Braking was more than adequate but slight fade was noticed on extremely hard stops. This may be caused by the newness of the machine and the front brake linings may not have been fully seated.

Summary

A strong relationship between man and machine takes a long time to develop. The Bridgestone Dual-Twin is one of the finest two-stroke lightweights we have had the pleasure to tesf, and is also one of the most technically advanced.

SPECIFICATIONS
BRIDGESTONE 175 DUAL TWIN

Engine	2 stroke, dual cylinders
Displacement	177cc
Bore	50mm
Stroke	45mm
Compression ratio	9.5:1
Horsepower	20 @ 8,000 rpm
Air intake system	Rotary disc valve
Starting system	Kick starter
Ignition system	Battery
Carburetor	Amal, VM 17 SC
Clutch	Manual, wet multi-disc
Transmission	4-speed, rotary, constant-mesh; 5-speed with "Sportshift" lever
Gear ratios, total	21.19:1, 13.50:1, 10.03:1; 8.10:1; 6.86:1
Frame	Pipe frame, cradle type
Front suspension	Telescopic fork with hydraulic damper
Rear suspension	Swinging arm with hydraulic damper
Tire size	2.50-18 (front), 2.75-18 (rear)
Overall length	74.2"
Overall width	29.5"
Overall height	40.2"
Saddle height	30.7"
Wheelbase	48.6"
Road clearance	5.9"
Net weight	271 lbs.
Gas tank	3 gal.
Gas consumption (claimed)	129 mpg @ 25 mph on paved, flat test road
Minimum turning radius	76.8"
Maximum speed (claimed)	Over 80 mph
Braking distance	Less than 20 feet at 22 mph
Retail price	$599.95 FOB Los Angeles