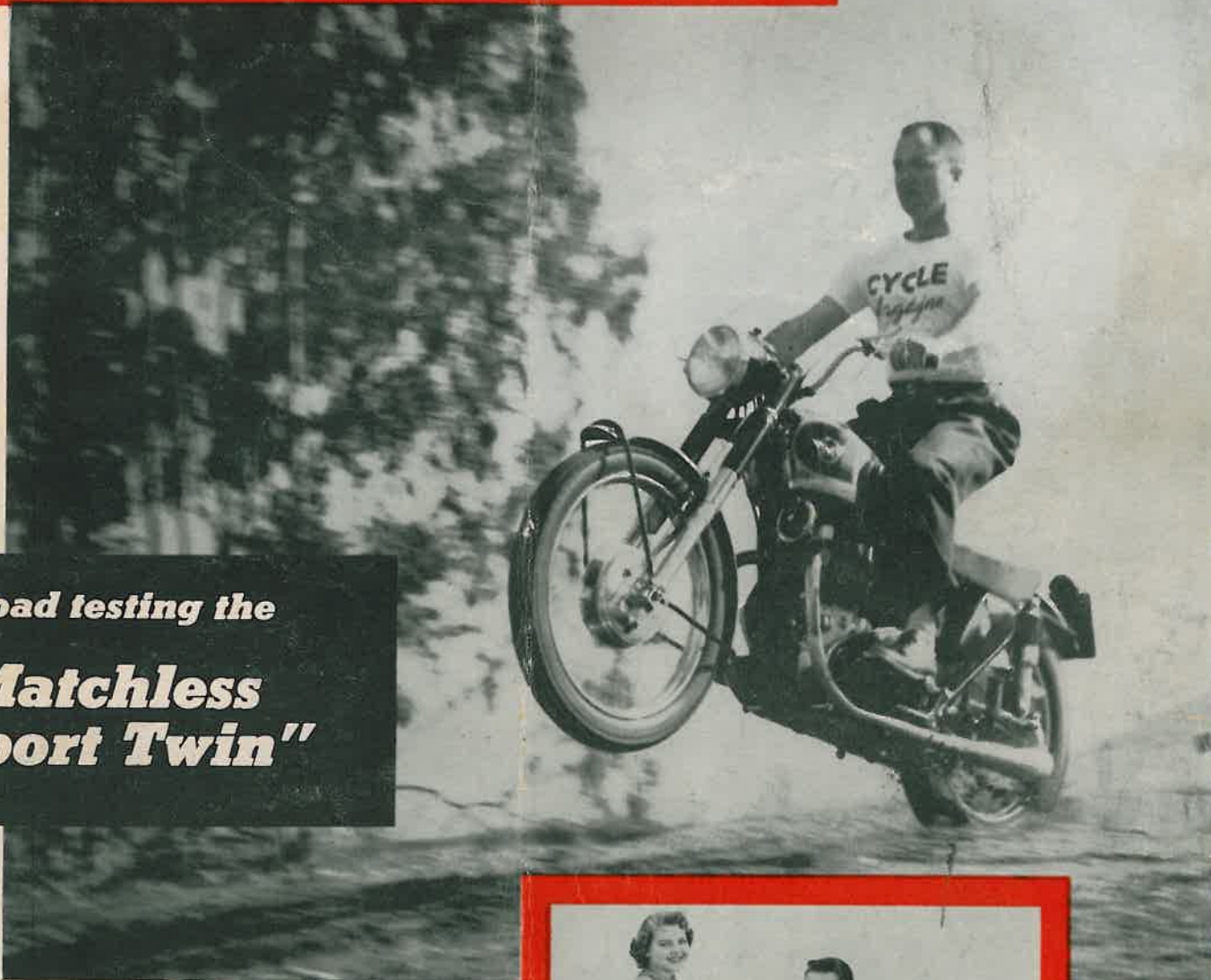


# CYCLE

"World's Largest Monthly Motorcycle Circulation"

**4 MORE PAGES!**

this month



*Road testing the*  
**Matchless**  
**"Sport Twin"**

**Ariel New Models**

**Technical Aspects**  
**of Carburetion**



HARLEY-DAVIDSON HUMMER



## "Sport Twin"

The Matchless "Sport Twin" proves to be an easy handler in the dirt.

By DON BROWN and HANK ELFRINK

Before giving our impressions of the actual road test of the interesting Matchless "Sport Twin", let's give this machine the technical once-over and see what makes it tick.

The Matchless G 9 "Super Clubman" model, is a vertical twin. The version we tested was a slightly modified G 9, especially prepared for export to the U.S. This model features a slightly larger bore (2 23/32 in.), which gives it a cubic capacity of 545 cc. The G 9 power unit is a development of a new twin introduced in 1949, and the design features a sturdy three-bearing lower end with light alloy connecting rods.

The crankshaft is supported in roller bearings on each side, a grooved plain white metal bearing being used for the center. The center bearing locates the crankshaft endwise. The roller bearings are the free-floating pure-radial type, which take only the radial load.

The main oil supply is directed to



Don Brown and John discuss some of the features of the Matchless Sports Twin.

the crankshaft center bearing, and from here oil flows through passages in the crankshaft to the connecting rod bearings. The drilled crankshaft oil passages incorporate plugged sudge traps. Lubrication is by a conventional dry-sump system that uses two spur-gear pumps, each independently driven at half engine speed from the ends of the two camshafts. The scavenge pump has much wider gears which give it the extra capacity necessary for efficient scavenging, to keep the crankcase clear of excess oil.

### Oil Circulation

Oil from the oil tank flows by gravity through a coarse-mesh metal filter via an external pipe to the inlet side of a delivery pump, then to an easily detachable felt filter in the crankcase. A pressure relief valve (set at approximately 140 lb./sq. in.) is incorporated as a safeguard when the oil is cold and



John McLaughlin operates the front stoppers in the brake test.

thick. When the engine has warmed up, the oil pressure at idling speed is between 20 and 40 lbs. and rises somewhat when engine speed goes up.

Oil to the overhead rocker assembly is supplied through a metered by-pass, after which it drains into the camshaft tunnels, and surplus lubricant overflows into the timing gear case. For 1955, the lubrication of the overhead gear has been improved. A pre-determined oil level builds up in the timing case and the camshaft tunnels for adequate lubrication of gears, cams and cam levers. Surplus lubricant overflows into the crankcase and sump where the sea-



The rear section of the "Sport Twin" clearly shows the generously finned brake hub, rear shock position.

venge pump returns the oil via another external pipe and through a large felt filter in the oil tank.

To prevent oil from seeping into the crankcase when the engine is stationary, a spring-loaded, non-return valve is used. This valve incorporates a union for attachment of a pressure gauge to check the oil pressure.

#### Wire-Wound Pistons

An interesting feature of the Matchless power unit is its so-called wire-wound pistons. This type of piston was introduced after exhaustive research and tests in the latter part of 1948.

Five turns of high-tensile steel wire fit in grooves of the piston circumference to control expansion and thus keep distortion within bounds. This result has been achieved to such a degree that the pistons are fitted into the bores with the very small skirt clearance of .001" -

.0015", which insures silent and efficient operation. After the wires are installed, they are ground to the finished diameter of the piston skirt.

The piston is cam-ground and slightly tapered. There are two compression rings and one taper ring. The top compression ring is chrome-plated and has a slight outside taper.

#### Impressions

There is no doubt that the Matchless "Sport Twin" is quite easy to handle. In some machines of comparable size and weight, one often has the feeling that in order to obtain a more suitable center of gravity for off-the-road running, some modification would have to be made. However, with the Matchless this was certainly not the case. On several occasions the machine was taken over some rather acute jumps and rough territory, and handling was always impeccable.

While the power plant did not deliver an over-abundance of power in the low range, it did give an ample amount when the speed was increased. Once the twin had progressed to around 20 mph., there was a definite surge of power. While in the dirt, the gearing used was not ideal and could have been somewhat lower, but the amount of power did prove to be ideal and adequate for any hill or obstacle.

The particular territory where the Matchless was tested was typical of the terrain used in many of the sporting events in Southern California. With us on the test run was the well-known motorcycle and sports car competitor, John McLaughlin, past winner of the National Championship Cross-Country Race, the Greenhorne Enduro Championship, the Catalina Grand Prix plus numerous other sporting events. This ex-air force pilot certainly agreed as to the conditions of the terrain: rugged. Hills, brush, rocks and mud were all encountered at one time or another during the testing period. The "Sports Twin" is thoroughly equipped with sports-type tires, which proved to be quite a help when the going got rough.

The only difficulty discovered during the test was a slight oil leak. The leak occurred on the return line to the oil tank. This leak was caused by an im-

John McLaughlin throws the Matchless into a severe slide in the dirt. Weight distribution seemed ideal and no tendency to "pogo" was noticed. While the suspension seemed to be ideally suited to the rough stuff, on high speed pavement corners some mushiness was apparent.



Don Brown takes the Matchless around pavement corner.

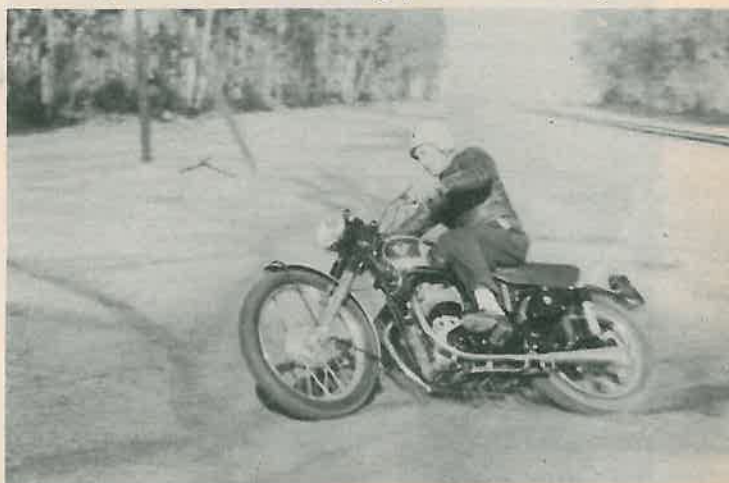
proper or defective rubber fitting. While these fittings do not usually cause any trouble, the fact that they are not provided with clamps at the crucial spots could be the subject of some discussion.

All of the controls of the Matchless worked as would be expected. The Burman gearbox gave clean and positive gear changing, and it was always possible to engage first gear without any gear clash caused by clutch drag. The clutch itself was easy to operate, and little pressure was needed for disengagement. The clutch did have to be adjusted after repeated acceleration tests, but no slippage was noticed during the entire proceedings.

During the speed testing period, it became apparent that with a few more easy road miles on the machine, it would undoubtedly have attained a higher top speed. However, 93 mph is not dawdling along for a motorcycle of its size and engine capacity. We say this with the thought that the machine never actually attained its top rpm. during the speed trials, mainly due to engine tightness.

In the acceleration department the machine proved to be above average. On pavement, and considering the type cam employed, the Matchless got off the mark fast, but it was in the dirt that the machine really proved its worth. The Matchless steamed through the standing quarter mile in just 14.9 seconds. The standing tenth was covered in 9.75 seconds.

The braking power of the "Sports





Front wheel shot illustrates the handsome design of the front section. Note the full width hub.

Twin" proved to be more than ample both in the dirt and on paved surfaces. It could be noted at this point that the tires fitted to our Twin certainly were not expressly meant for stopping on paved surfaces. In spite of this, the Matchless managed to turn in a commendable job of bringing man and machine to a screeching halt.

Using the front brake only, John McLaughlin was able to stop the Twin in just 18 feet and, with the rear brake only, the Matchless slowed to a stop in 33 feet. When both brakes were applied, the Twin came to a dead stop after covering only 13 feet. All of the afore mentioned braking distances were figured from 25 mph. to a full stop.

#### Rear Suspension

Top marks must be given to the Matchless Teledraulic front and rear suspension. The rear suspension rate is somewhat softer than on most makes, and it really does an excellent job of absorbing small road irregularities, while the hydraulic damping gives the desired progressiveness on bad bumps.

The rear wheel is mounted in a fork hinged just behind the gearbox. The fork hinge has plain bearings which are lubricated from a reservoir containing 42.6 cc. of heavy gear oil, which should last almost indefinitely. Provision for topping up, however, is made by removing the screw in the right-end cap of the bearing. Suspension is by springs in the "Teledraulic" legs, and spring movements are damped by dampers identical in design to those used in the front fork assembly. Each leg is filled with 85 cc. of hydraulic fluid of S.A.E. 20.

#### Rear Wheel

The rear wheel is of the quickly detachable type which, for 1955, is completely new. The pull-out spindle system permits the wheel to be removed with the hollow axle and bearings, leaving the rear drive and brake assembly completely undisturbed. Rear wheel driving torque is taken by five shouldered studs.

Inasmuch as the model we tested was provided with the new Amal Monobloc carburetor—described in this issue, we had a chance to find out just how this new addition would react under extreme conditions. At no time during

the test period did this component let us down. The Monobloc was an easy starter, and it took full throttle from low speeds without the slightest sign of sputtering once the machine was thoroughly warmed up. On one occasion, when the machine was taken down a long and very steep hill, we thought that perhaps this would be the carburetor's downfall. Carburetion, however, remained faultless, and at no time was there any tendency to "load up".

The appearance of the Matchless "Sport Twin" leaves little to be desired. The dual exhaust pipes flow along the lower part of the frame and funnel into megaphone mufflers of handsome design. When the Matchless is fired up for the first time, one immediately notices the even, subdued exhaust note, which is carried throughout the entire speed range. The beauty of the machine is further enhanced by the special light alloy fenders fitted to this particular export series.

Summing up, we believe the Matchless G 9 twin is a potent and versatile machine of thoroughly proven design and due to its excellent suspension system, is equally at home on or off the beaten track.—*Hank Elfrink—Don Brown*

Here John McLaughlin flies over a series of bumps while testing the Matchless suspension. During a series of such tests, the machine was ridden down the middle of the railroad tracks which can be seen in the background. Tires with which the Matchless was equipped proved to be ideal for the dirt but not so suited for pavement riding.



## Specifications

**Engine:** Vertical twin cylinder, ohv. 2.72 x 2.87 in. Cubic capacity 545 cc. (33.4 cu. in.). Push-rod operated overhead valves by two gear-driven camshafts. Light alloy connecting rods with Vandervell plain bearings. Cast alloy iron crankshaft supported in three bearings (two journal roller bearings and a center Vandervell plain bearing). Compression ratio 8:1. Maximum power: 33 hp at 6800 rpm. Dry sump lubrication with two spur gear pumps. Amal Monobloc carburetor.

**Electrical Equipment:** Lucas magneto ignition (type K2F). Cut-out button on magneto contact breaker cover. Spark plug K.L.G. (FE 80) Corundite 3/4 in. reach. 6 Volt 45 watt Lucas generator with automatic voltage control. 7 in. headlamp with twin pilot lights.

**Transmission:** Primary chain enclosed and oil-bath lubricated. Rear chain protected by deep section guard. Cam-type crankshaft shock absorber. Burman four-speed gearbox with foot control. Ratios: First 13.91:1, second: 8.91:1, third: 6.86:1, top: 5.25:1. (with standard 20 teeth engine sprocket). Multiplate clutch.

**Frame:** Duplex cradle frame, Teledraulic front and rear forks. Spring up central and side stands.

**Brakes:** 7 in. brakes front and rear. Full width front light alloy hub and straight spokes.

**Tires:** 3.00 x 21 front; 4.00 x 19 rear.

**Fuel tank capacity:** 4.5 U.S. gallons.

**Wheelbase:** 55 1/4 in.

**Dual seat height:** 31 1/2 in.

**Weight as tested:** 410 pounds.

**Manufacturers:** Associated Motorcycles Limited, Plumstead Road, London, England.

## Performance Summary

### MAXIMUM SPEEDS

1st gear .....	45 mph
2nd gear .....	56 mph
3rd gear .....	81 mph
4th gear .....	93 mph

### ACCELERATION

1/4 mile drag .....	14.9 sec.
1/10 mile drag .....	9.75 sec.

### BRAKING DISTANCES

from indicated 25 mph to full stop—

Front brake only .....	18'
Rear brake only .....	33'
Both brakes .....	13'

### GASOLINE MILEAGE

overall average .....	56 mpg.
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### SLOW RUNNING

High (4th) gear without chain snatch .....	15 mph
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