CYCLE WORLD
ROAD TEST

500 MARUSHO MAGNUM ELECTRA

THERE ARE MANY famous quotations dealing with progress and improving the breed. Almost every single one has, at one time or another, been applied to motorcycles. One small Japanese manufacturer could, however, use all of them to describe his latest product and would not be exaggerating a point. The machine, of course, is the Marusho. Built by the Lilac factory in Japan, it has undergone constant design changes since 1963 to make it more reliable and more acceptable to the American rider.

In the past, many people have been guilty of passing the Marusho off as simply a copy of a highly successful touring machine and letting it go at that, but a serious look at the new Magnum 500 "Electra" will reveal a pleasant road burner that is very individualistic in many ways. A leg-saving, electric starter is responsible for the word "Electra" in the title. To accommodate the extra current requirements, a 12-volt electrical system replaces the previously used six-volt arrangement. The battery capacity now has a 10 amp/hr. rating, and at no time during our test period was the Marusho ever reluctant to start.

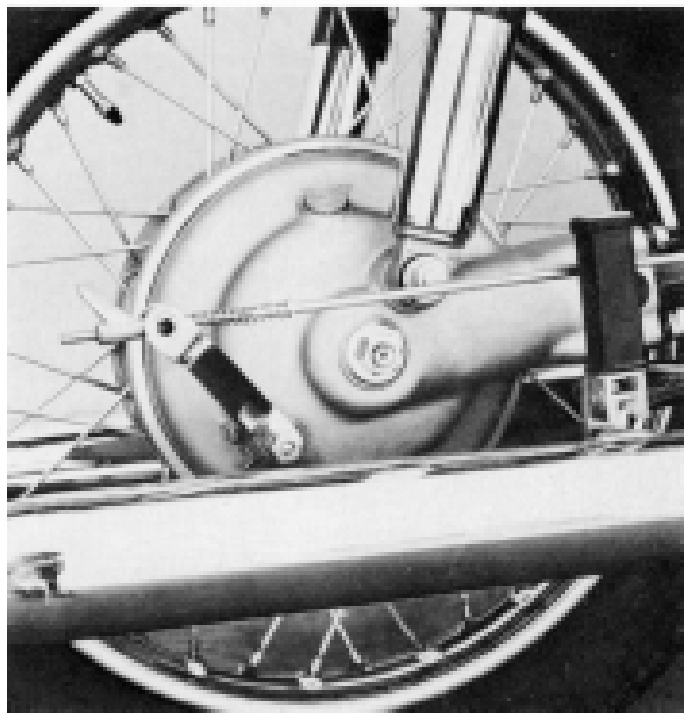
The electric starter was conceived and developed right here in the U. S., when a small car starter was installed on a standard magnum. First it was necessary to machine the original flywheel and install a starter ring on the periphery, and after welding a mounting flange, the starter could be mounted from the rear in car fashion. The system worked very well after the usual preliminary adjustments, and the American distributors sent the whole lot off to Japan so that engine castings could be changed accordingly. Not only did the gearbox casting have to be changed but also the main crankcase, which now has a hump at the rear to allow space for the starter drive mechanism.

Meanwhile, back at the factory, an oil filter was developed to sit on top of the main crankcase housing, and when the new castings were designed, a pedestal was cast into the top of the crankcase to accept the finned oil filter housing. The oil pump capacity has been increased to cope with the filter and the sump volume increased for a total capacity of 2.5 quarts to allow extra oil for the filter. To help cool the additional oil, the sump now has much deeper fins, which will also be a benefit to riders in the desert areas of the U. S.

Large engine castings are always one of the requirements of a horizontally opposed transverse twin, and the Marusho is no exception. Particularly impressive is the massive front casting, housing timing gears and ignition equipment. All castings, including the rear wheel bevel housing, appear to be well made with a clean external finish.

Although the cylinders are painted black, they are actually aluminum castings with shrunk-in cast iron liners. Both liner thickness and external cylinder finning have been increased considerably over previous models, again in view of the high temperatures encountered in some parts of the U. S. The pistons are now a five-ring design with three compression rings and two oil scrapers, one located at the bottom of the piston skirt for maximum oil control. The piston uses a plain bearing in the connecting rod small end.

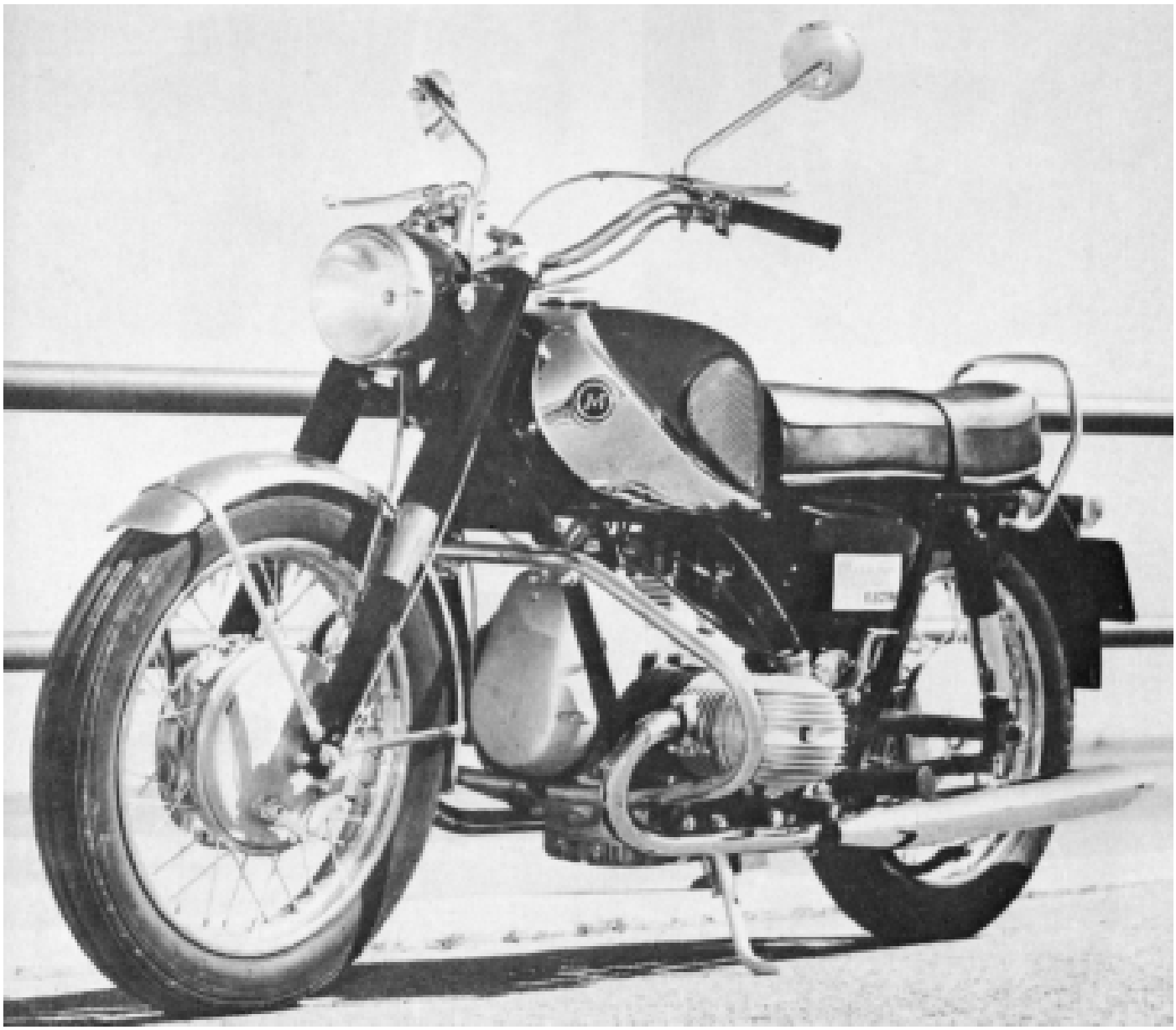
As in the case of most transverse twins, the Magnum's crankshaft is quite short and exceptionally robust. Some of the early designs suffered from main bearing failures, and to ensure against the problem on the new units, a roller type main bearing has been fitted at the rear. Simi-



larly, in the interest of longevity, the connecting rod big end roller bearings now have a new bronze alloy cage. The crankshaft timing gear and camshaft drive gear are made from new materials, plus new heat treat methods for the camshaft, all for reliability.

In addition to flywheel modifications to incorporate the starter ring, the factory has also lightened the actual flywheel. And, while the engine is still very smooth and vibration-free throughout the rpm range, acceleration has been improved considerably. The single plate, car-type clutch now has a six-spring pressure plate replacing the older four-spring unit. The clutch operating levers have been redesigned so that additional pressure at the handlebar lever is not required to disengage the clutch. Even after several hard runs, the clutch remained smooth and predictable.

Being basically double loop, the Marusho has a typically wide frame to accommodate the large crankcase section. Heavy gauge front down tubes originate at the steering head, pass under the cylinders and extend rearwards to carry the mufflers and passenger pegs. Tubing of the same diameter rises at a 45-degree angle from below the swing arm pivot to carry the upper fixed portion of the rear suspension units. Slightly smaller tubing is used to complete the loop back to the heavy single width top tubes. There are no support tubes anywhere in the large loop, but the engine is mounted rigidly to the frame, top and bottom, and therefore lends rigidity to the cradle. The fact that the frame is strong is borne out while riding; the Marusho is stable under all conditions. As might be expected with rear suspension and shaft drive, the swing arm is a massive affair. On the right side it is cut off short to mate with the integral extensions of the bevel drive hub. The actual driving shaft passes through the right arm

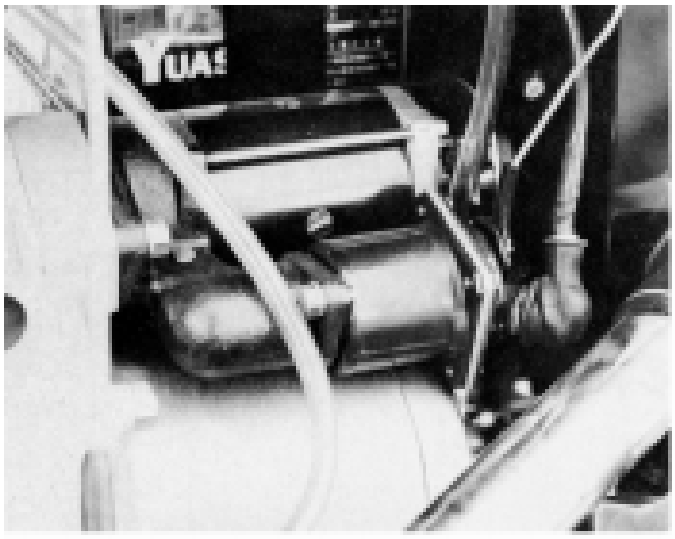


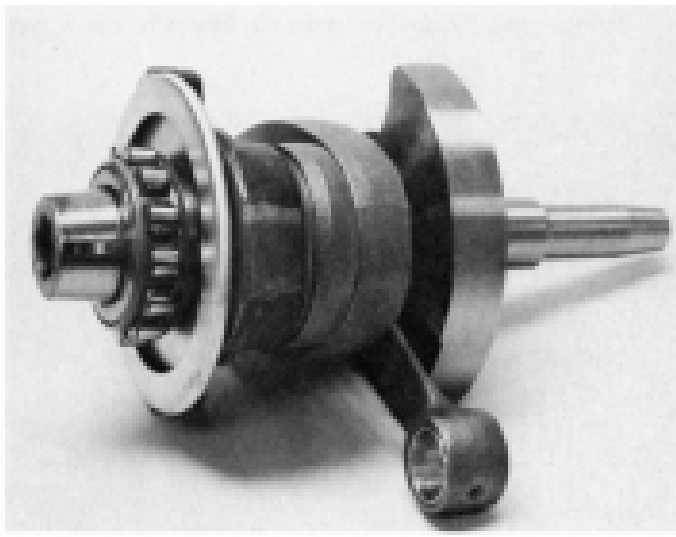
to transmit the drive from the gearbox output shaft, and because the swing arm moves while underway, it is necessary to have a flex joint at the transmission/drive shaft junction. Marusho does not use a metal universal joint at this point; instead, a large neoprene "doughnut" with six molded-in sleeves fits vertically between the shafts. Each shaft has a three-point flange with welded-in studs which pass through the doughnut. This system has proven very satisfactory, as the neoprene is impervious to oil, gasoline, or any of the various chemicals a person might run into while riding.

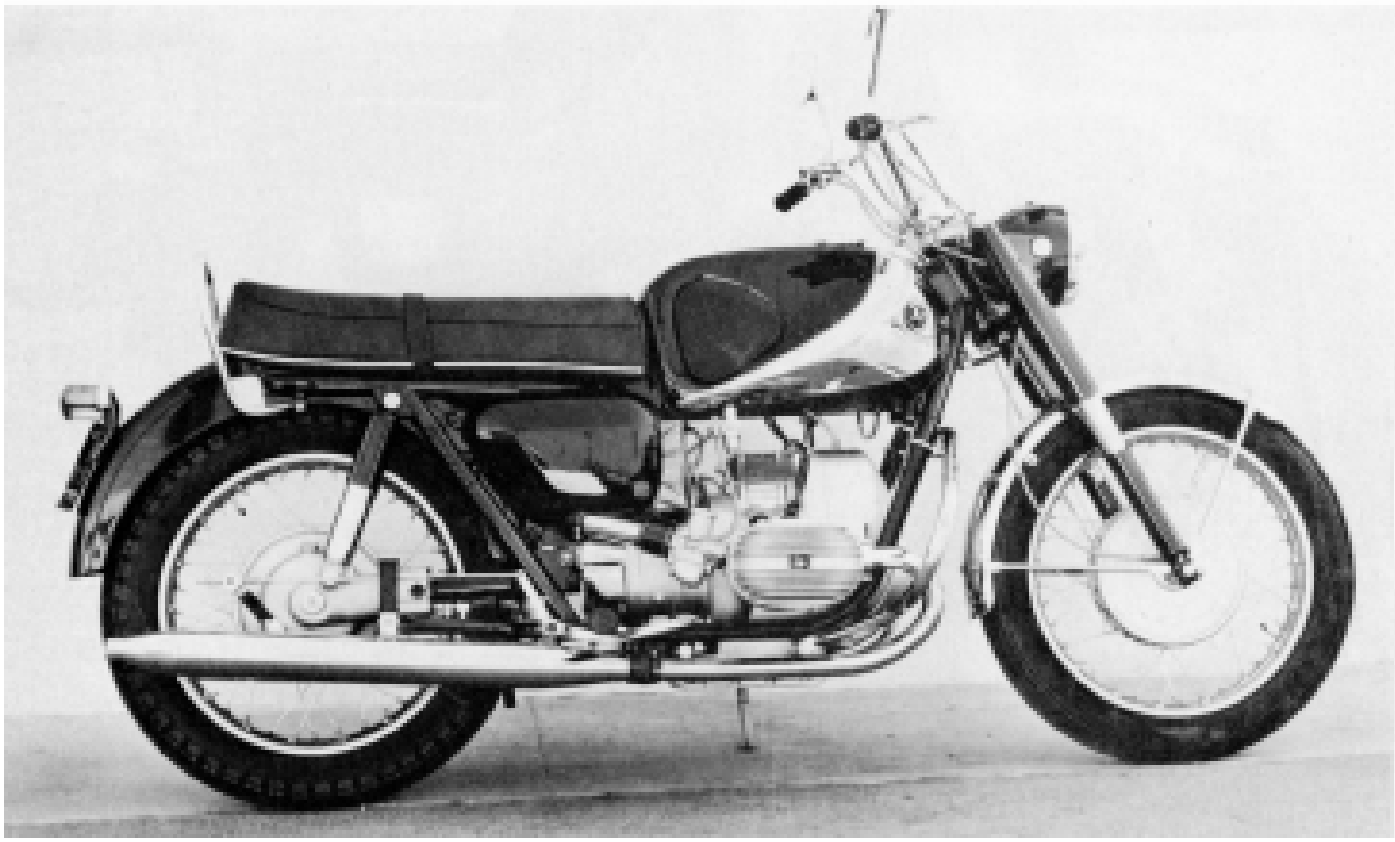
On former Marushos an air cleaner chamber was an integral part of the top of the gearbox casting, with a cylindrical element and the carburetor intake tubes doing a fancy "S" bend. The electric starter now fills the previous air cleaner space completely so that the air cleaner has now been moved back into the streamlined left side cover. The intake tubes are now straight with molded bends to enter the air cleaner box. We found it unusual that the larger battery protrudes from the front of the right side housing. Even though it is wrapped in plastic, it does blemish an otherwise beautiful exterior.

We have said previously that the general handling is good. The Marusho is heavy, but most of the weight is low in the the frame so the machine does not feel cumbersome. Suspension, both front and rear, has good damping and the telescopic front forks work especially well, contributing considerably to the overall good handling.

The brakes remained smooth and predictable throughout the test and were completely up to the job in every respect. Performance is good for a five-hundred, despite its weight. In fact, all in all, it is a rather pleasant touring machine, both in appearance and performance. ■



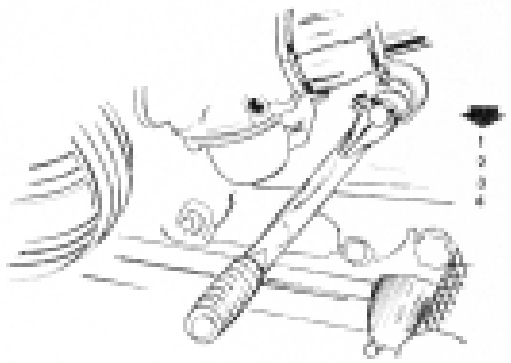




MARUSHO MAGNUM ELECTRA

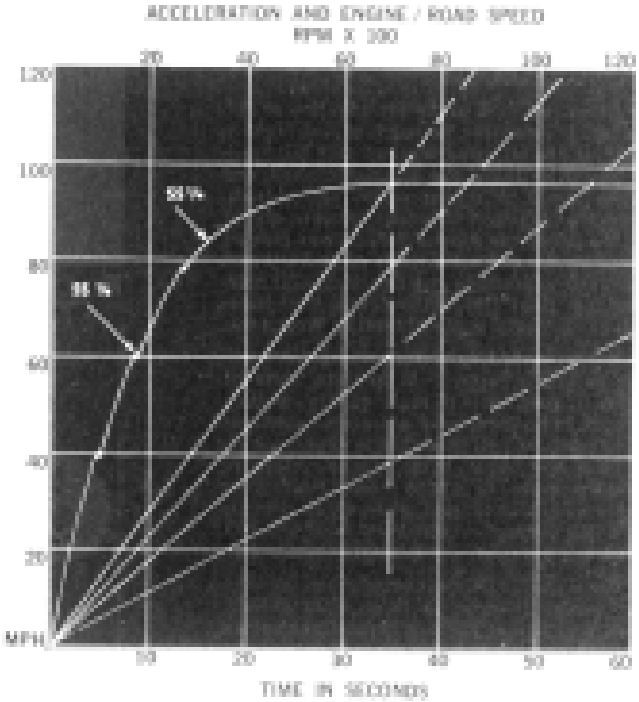
SPECIFICATIONS

List Price	$1195
Suspension, front	telescopic forks
Suspension, rear	swing arm
Tire, front	3.25-18
Tire, rear	3.50-18
Brake, front	7 x 1.4
Brake, rear	7 x 1.4
Total brake swept area, sq.-in	61.5
Brake loading (test weight/swept area) lb./sq.-in.	9.4
Engine type	opposed twin, ohv
Bore and stroke (inches-millimeters)	2.68 x 2.68, 68 x 68
Displacement (inches³-centimeters³)	30, 493
Compression ratio	9.6:1
Carburetion	(2) 28mm (1.1") Mikuni VM
Ignition	battery and coil
Bhp @ rpm	40 @ 7000(est)
Oil system	wet sump
Oil capacity, pts.	5
Fuel capacity, gal.	4
Starting system	electric & kick
Lighting system	battery, generator
Air filtration	paper element
Clutch	single-disc, dry plate
Primary drive	none
Final drive	shaft and bevel gear
Gear ratios, overall:1	
5th	none
4th	5.1
3rd	6.7
2nd	8.9
1st	13.8
Wheelbase	55.0
Seat height	32.0
Seat width	9.8
Foot-peg height	10.5
Ground clearance	(at stand) 4.5
Curb weight (w/half-tank fuel)	406
Test weight (fuel and rider)	566



PERFORMANCE

Top speed	96
Maximum speed in gears (@ 7000 rpm)	
5th	none
4th	102
3rd	78
2nd	60
1st	38
Mph per 1000 rpm, top gear	14.1
Speedometer error	
30 mph indicated, actually	31.0
50	52.2
70	74.8
Acceleration, zero to-	
30 mph, sec.	3.1
40	4.5
50	6.7
60	8.6
70	10.9
80	14.2
90	20.8
Standing 1/8-mile, sec.	8.6
terminal speed	60
Standing 1/4-mile, sec.	15.7
terminal speed	84



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