

INTENSIVE WINTER CURES have done a lot of good to the 250 Benelli "four." Power has been stepped up to 52 bhp (i.e. 208 bhp/litre, about the same value as the strongest Japanese contenders) and also torque and reliability have been considerably improved. Suffice to say that one engine has done bench testing, practicing and racing for the first two Italian Senior Championship races without being touched and without getting off tune!

Where have the modifications been carried out to reach these performances? Let's see. The shape of the inlet and exhaust ports has been slightly retouched as well as the timing diagram and the valve lift: the engine thus has better "breathing" and therefore higher top speed (143 mph) and quicker acceleration through a wider rev range, from 8500 to 13,000 rpm. Combustion chambers (with two valves each) and piston crowns have been differently shaped to achieve a better "squish" effect. Compression ratio has been fixed at the not-too-high value of 10.5 to 11:1 according to necessity.

The crankshaft has been strengthened, as well as its six bearings. So there are also less vibrations. The gear type lubrication pump's delivery has been increased (and the oil channels have been modified accordingly) and this is especially good for the big end bearings, since the maximum power rev range is now between 14 and 14,500 rpm with the possibility of reaching 15,000 while down-shifting during braking.

The various gears for the double ohc, the primary drive and seven-speed gearbox have also been modified in width and teeth contours to diminish friction. The magneto, which is mounted in front of the crankcase and is bevel gear-driven right from the crankshaft, is now from a four cylinder two-stroke U.S. racing outboard engine. The Lucas magneto previously fit-

ted (the same as used on the Gilera and MV fours) didn't work properly over 12,000 rpm. The new model, after some minor modifications carried out by the Benelli racing shop, is quite all right even at 15,000 and more rpm. However, transistor ignition is also under development.

In conjunction with works rider Tarquinio Provini, who is particularly specialized in this field, the frame has been lowered and shortened. The right hand side tube of the cradle is movable to enable quicker dismantling of the power unit. These changes have insured less weight and more streamlining and roadholding. Finally, there is the American-made Airheart double disc brake on the front wheel, actuated by a master cylinder near the right lever on the handlebar. Apart from the well known advantages of this type of braking, the wheel is now quite a bit lighter and according to Provini this also has a favorable effect on cornering.

The Benelli 250 four is a typical example of the Italian "school" in the multi-cylinder field. Introduced in 1960, it links up with a similar model (watercooled and supercharged) built by the Pesaro works just before the war. The double ohc are driven by a train of gears which take the movement from the middle of the crankshaft and are set in a case between the two pairs of cylinders. There are two valves per cylinder and coil type springs are used. The primary drive gear is between the first and the second crank on the left hand side of the shaft (to reduce transverse width) and also on this side there is the multiplate exposed dry clutch of considerable diameter.

Light alloy cylinder and heads: the cylinders have austenitic barrels and are separate, while the heads are grouped two by two. Bore and stroke dimensions (in millimeters) are 44x40.6x4 = 246.8cc. The crankcase also is a light alloy casting and

is in a single piece, with one rectangular front cover and four circular side covers to enable quick dismantling or fitting of the crankshaft, primary drive gears and seven-speed gearbox assembly. The oil sump is bolted-on under the crankcase. The four 24mm Dellorto carburetors are fed by two "flat" float chambers, are not so steeply inclined, have rubber mounting against vibration and heating and feature a particular shape of air intake which is reported to improve the air flow.

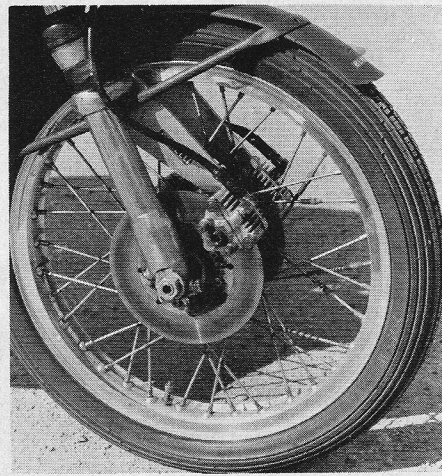
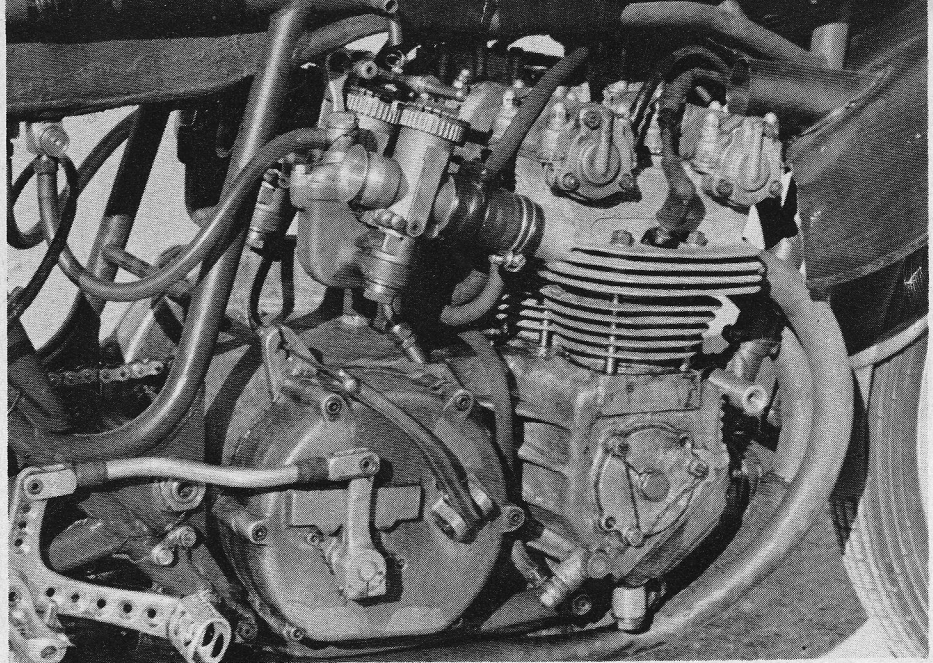
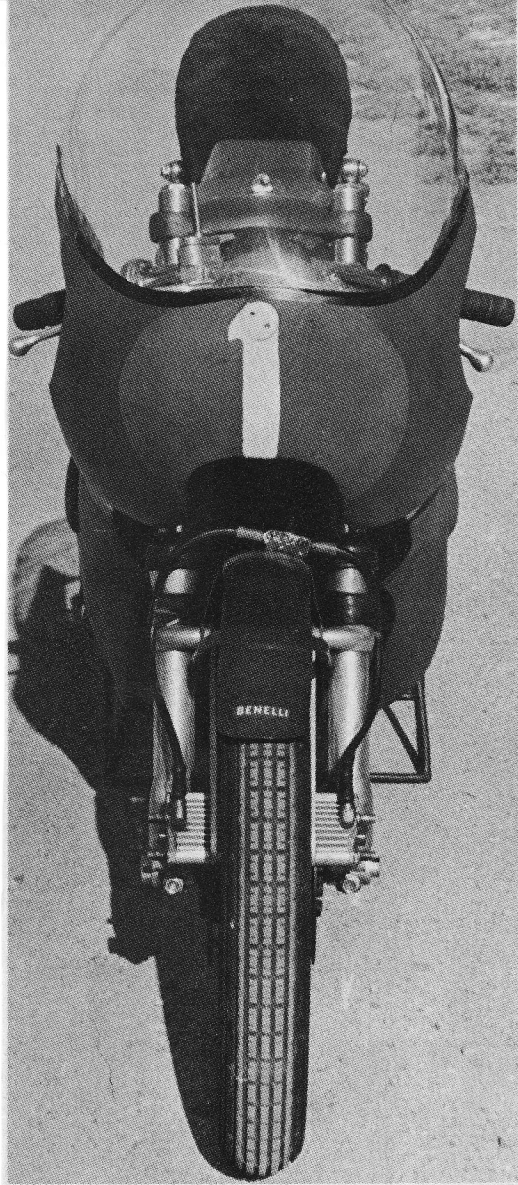
The light alloy fuel tank, "anatomically" shaped by Provini, who likes to get as flat as possible, holds 3.4 gallons; for long-

THE 1965 BENELLI 250 FOUR

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er races there is a similar model holding 4.2 gallons. Incidentally, the Benelli four delivers 30 mpg even at full chat. Due to the much regretted disappearance of the Avon, the wheels now carry 2.75x18 (front) and 3.00x18 (rear) "triangulated" Dunlop covers. Weight is 246 lbs. in racing condition.

After missing the USGP at Daytona because it was only two days after the first Italian Senior Championship race at Modena, the Benelli 250 four is going to participate with Tarquinio Provini in the European classic events, T.T. included. It is indeed the best Italian challenge for the two-fifty class. •



Latest version of Italy's strongest 250 class challenger with Airheart front disc brake and American magneto. Except for the new brake, factory's machine is identical to the one displayed at CW show.

