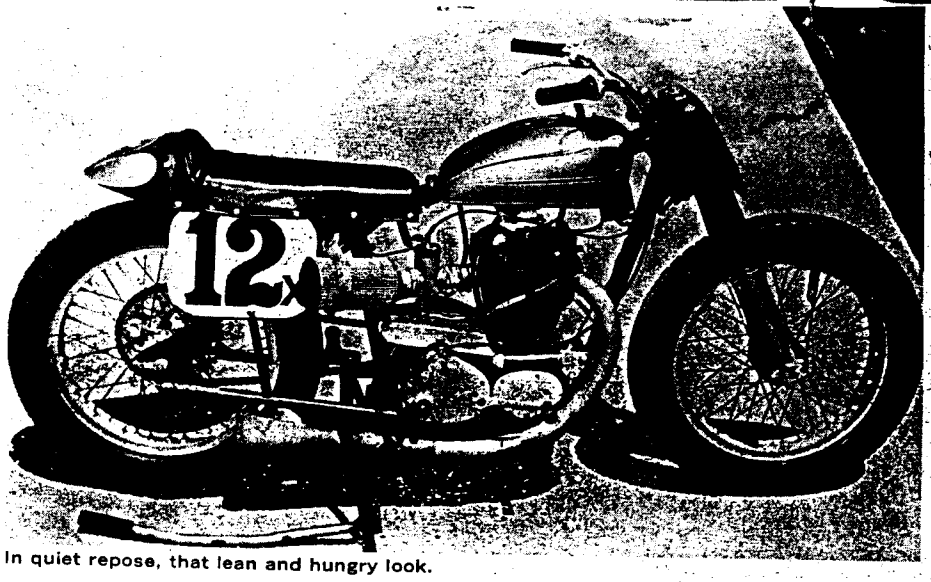
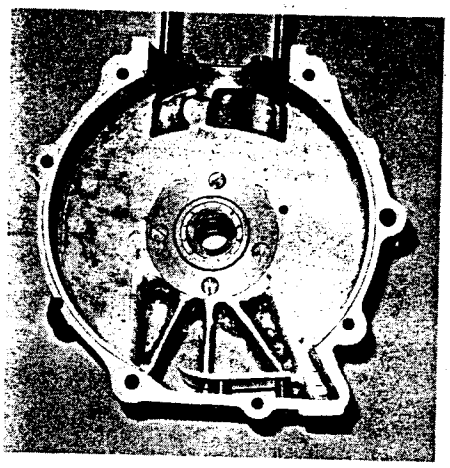


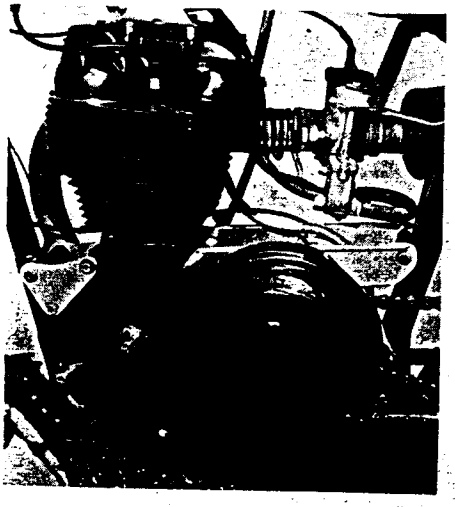
In quiet repose, that lean and hungry look.

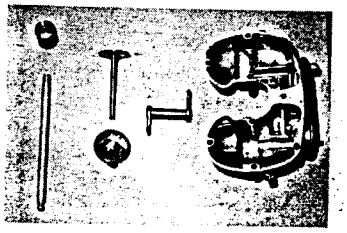
M

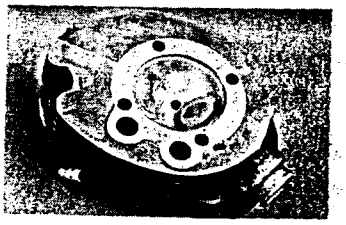


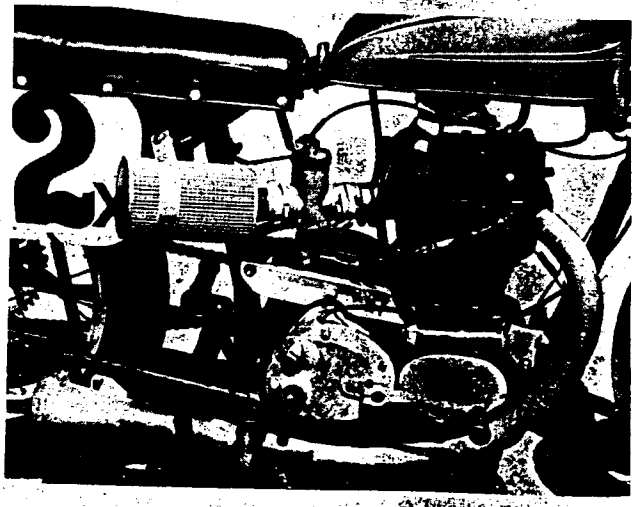
TO MAKE A MATCHLESS GO, you simply twist the little handle . . . after, of course, a lot of redesigning and plain hard work. Starting point for this particular machine was a 1957 G-80 RR, intended by the factory to be a slugger of mediocre output and light weight. Rebuilt from the ground up by the late Bennie Sims, the bike is now owned and sponsored in professional flattrack competition by Carol Sims, CYCLE WORLD's feminine managing editor.

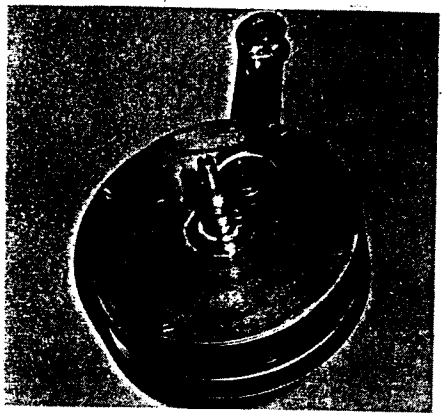
So gather 'round all you Matchless lovers who would like to have a Flying M, and we'll take a trip through the "Matchstick" being ridden so successfully at Ascot Park by Jim Nicholson, the most notable Amateur rider since Troy Lee trounced the Experts to win the season championship a few years back.











The flywheels are a standard item with some weight machined off the diameter, which now measures 7¾". A Matchless G-50 rod, considerably shorter than the original, carries the 14-ounce piston assembly. The original oil pump was removed, all the resulting holes were plugged, and a drain hole drilled into the pump cavity. The oil pump currently in use, gear-driven off the end of the intake cam, is the return half of a BSA single pump.

Oil is routed first to a filter welded on top of the cam cover. From there the filtered oil travels through passages welded into the inside of the cam cover with a pressure regulating valve set for twelve pounds. Oil which bypasses the valve goes to the rocker box and then drains from the head through a large tube to the tank below.

The cams are by Harman & Collins, running on bushings made up in 660 bronze. A 1808 H&C cam works fine for the intake, opening at 64 to 65 degrees, and both 1808 and 1810 exhaust cams have been used successfully. The 1810 has the longest duration and gives an overlap of 125 degrees, while the 1808 gives 115 degrees. Timing is checked at .020 lift at the cam followers; running clearance is .008 for the intake and .010 for the exhaust with the austenitic valves,

feeds to both cam followers, then through dowel pin holes into .030 jets installed in the case and aimed so that oil impinges on the point of contact at one-eighth inch valve lift.

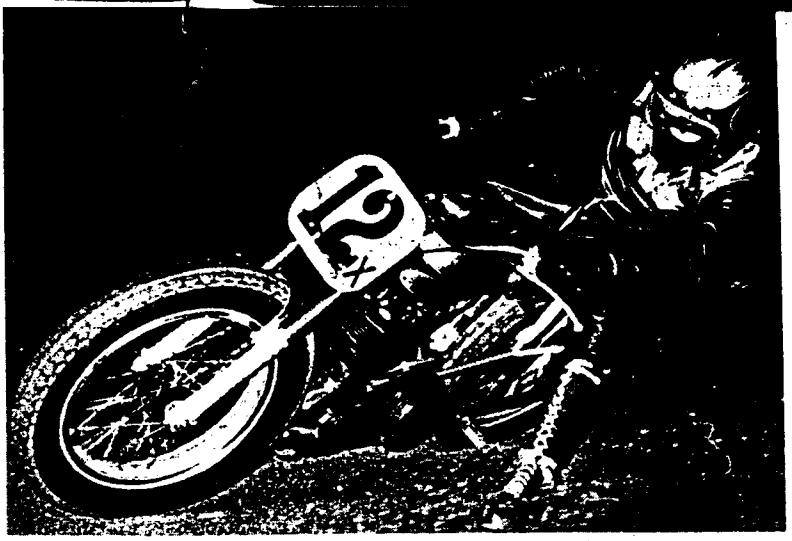
Lubricant for the big end is fed through the end of the pinion shaft via an .073 metering hole and neoprene seal in the plug. The three holes in the shaft for the original oil feed are plugged. No return pump is used, the oil being forced into the tank by crankcase pressure and gravity. The tank itself is carried under the machine and is baffled to prevent oil gushing into the crankcase on deceleration. A large diameter breather tube exhausts through a filter attached to the bottom of the seat.

Incorporated in the filter end plug is

PHOTOS BY WALT MAHONY
& CHUCK CLAYTON

IS FOR MATCHLESS
(...or is it magic?)

BY SAM SATTERLEY



Jim Nicholson competing at Ascot.

which have a fairly high coefficient of expansion.

Pushrods are 2024-T351 aluminum tubing of half-inch diameter. Shims are used under the top pushrod end for valve clearance adjustment. The cam followers have removable pads installed to increase the diameter to 1.145 since the standard size can't be used with racing cams. Cam followers are standard G-80 RR items, although to circumvent pad and cam wear we are now working on a roller setup.

The rocker arms are Bennie Sims originals — very light but hell for strong. Instead of using bolted-on arms as originally, the standard ends are welded to steel tubing. To accommodate them, the rocker box is cut out and half bushings used so keepers are used with the aluminum collars.

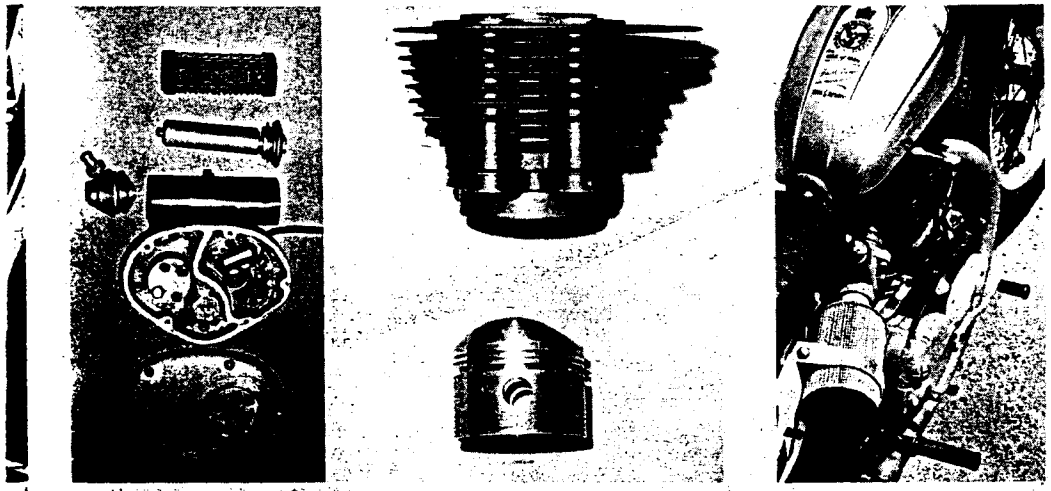
The exhaust valve seat is aluminum-bronze and the intake is cast steel alloy. It was necessary to fill the head with weld after removing the stock cast-in seats as they are reverse tapered and leave quite a cavity.

The intake port is at the standard angle, opened out to accommodate the 1-1/2-inch Amal Grand Prix carburetor and large valve. Another head is in the plans with more downdraft to improve the breathing at high revs. The carburetor is mounted with a flexible hose and the length from carb to original head flange surface is 2-1/4 inches.

An MC forged BSA piston is used, giving 11 to 1 compression. To adapt the present

SNS RACING TEAM
Matchless 1957-G-80 RR

Horespower: 43 at rear wheel @ 7200 rpm
Weight: 230 lbs.
Bore & Stroke: 86 x 85.5
Cubic Inches: 30.50
Cams: Harman & Collins
Valve Guides & Seats: Herb Litch
Piston: MC forged BSA
Paint: Von Dutch
Welding: Paul Crowell
Tires: 400 x 19 Pirelli
Hubs: Mike Tucker
Spokes & Nipples: Buchanan
Rims: Borrani
Spark Plugs: Autolite #603
Gas: Chevron
Oil: Shell Rotella 20W40
Tuner: Sam Satterley



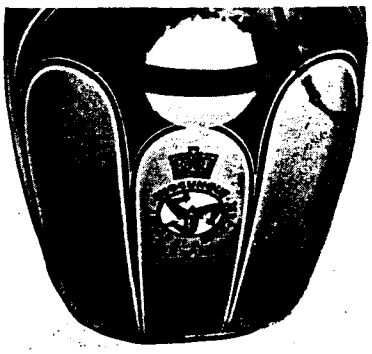
the arms can be slipped in. Oil feed is restricted by adjusting screws and the squirt hole used originally for exhaust oiling is drilled out to one-eighth of an inch. No oil holes are provided in the aluminum-bronze guides.

The austenitic valves are homemade and have 30-degree seats. Seat widths are .050 of an inch for the intake and 3/32" for the exhaust. Valve sizes are 1-31/32" for the intake and 1-9/16" for the exhaust. The distance from stem ends to cylinder head is 1.600 which gives proper rocker arm to valve angle for the higher engine speeds. Valve springs are the usual S&W "heavies" packed at 1.330 on the intake and 1.325 on the exhaust. Shallow groove 3/4-inch wristpin to the G-50 rod, a bushing was made up in 2024-T351 aluminum. It was also necessary to cut the valve reliefs to 40 degrees, the original being less than this.

The exhaust pipe is 1-5/8" in diameter and 35 inches long, including the exhaust port. Ignition is handled by battery and coil with Honda points operating off the end of the exhaust cam. The oil seal in use there is a C/R #4927. Ignition timing is 39 degrees.

Mounted close to the engine, the transmission is not adjustable for chain tension, the chain being discarded when worn. Mounting plates and brackets are formed of light alloy; the gas tank and seat are

Matchless single won the first Isle of Man race, hence I.O.M. "land anchor" emblem on tank.



fiberglass. The oil tank was once an old steel locker, and the primary cover is also homemade, using an old Ford hubcap and some more of the locker. Ready to race the machine tips the scales at only 230 pounds . . . and the rider weighs 120.

Wheelbase is 55 inches, and 52% of the machine's weight is on the front wheel. Rake is 28 degrees, trail is 3-1/2"; both wheels are 19-inch. Fork length with rider in position is 26 inches.

The dry clutch, using Ferodo inserts, is standard except for an aluminum chain wheel. The primary chain is drip-lubed from the rear frame downtube; the 1/4-inch Diamond rear chain runs on narrowed sprockets.

Sound more like hard work than magic? You're right! And that may be why it's the only Matchless running — and winning — at Ascot. •