The Road to 7R Success Continued

being able to slide about, for I like to become part of my mount. It also allows me to jam myself securely when braking hard and magnifies arm leverage.

Footrests I tailor last of all. If the range of adjustment on the 7R is too small, cut the rests and re-weld. I like to have the brake pedal under the ball of the foot when the foot is at ease on the rest; lifting the foot to apply the brake is wrong.

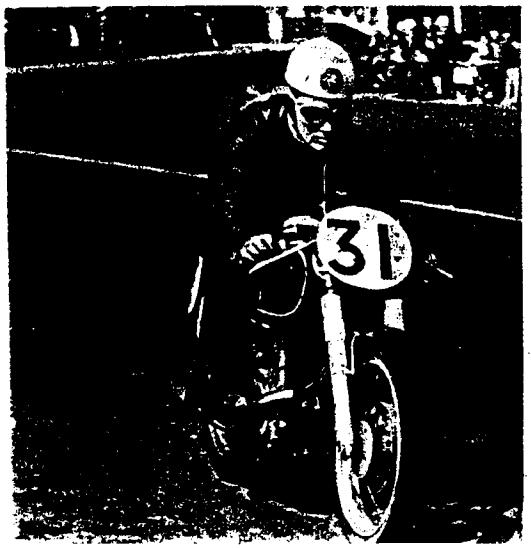
I'm very fussy about my gearchange lever, which must be always just above my instep, set so that the pedal portion is level with the rest. This implies that the feet point slightly downhill and this is in order. Bad positioning can mean missed cogs—which can be dangerous and expensive.

Clutch and brake levers I mount level with the bars. On the 7R, the levers offer more finesse if spring chain-links are used to reduce the span necessary for small fingers.

The current 7R flyscreen is admirable at its six to seven inches height. Moreover, the .060-in. celluloid fitted has the advantage that, if scratched, it is easily and cheaply renewed.

Sticking a 1-in.-thick sponge rubber pad to the tank top completes the position preparation. The slab is for the chin and it need be no larger than six inches by two inches; no more is required, and the lavish padding sometimes seen is worse than useless.

In his second season on the 7R, "Bob Mac" wins the 1953 "North West 200".



Plenty of nonsense is aired today about carburation. I set mine before the season starts and, once it's right, leave it alone. It is pointless to change jets for either altitude or temperature variation in this country. Anyway, the maker's jetting is usually spot-on and certainly never more than one size out.

Correct cogging is vital. I aim to get peak revs at maximum speed on the fastest part of the course. The A.J.S. range of 7R sprockets is ample to achieve this on any course, and the special low bottom internal ratio is often an advantage.

Chains should always be riveted. On the 7R the primary chain setting is critical and, as a loose box always moves backwards, the "pushing" adjuster should abut against the box as a safety precaution. Although the standard 7R "up-and-down" play is just right for both chains, I find the rear one is best set with a clamp on the rear springing so that the adjustment can be carried out with the chain at its tightest run. It is important that chain tension shall not influence the suspension.

Naturally, wheel alignment is of consequence; I prefer to use a straight-edge rather than string. Both wheels must be balanced and spin freely. I adhere to makers' recommendations over tyre pressures, dropping them two p.s.i. for wet roads.

My last check is on control settings. That of the front brake is normal, but on the rear I prefer plenty of slack. The 7R clutch should be adjusted at the pressure-plate end to avoid the trap of having handlebar lever clearance with a tight push-rod. The throttle must be free from backlash and both ends of the cable "outer" should be taped to the mechanism.

I find nothing savage about the behaviour of the A.J.S. 7R. The days of violent megaphonitis have gone from racing and the "Boy Racer," in particular, is free from temperament.

It is an easy starter. I neither turn the juice off nor flood the motor at the grid—just stop it and wait. A quick get-away results from pushing hard against the applied front brake, releasing it with the flag; three smart steps and the clutch is dropped, the engine firing *before* I land in the saddle.

On any race machine I reckon to change up about 200 r.p.m. before peak in the gears. This not only gives better acceleration, but promotes reliability.

Lastly, about general equipment. A front guard is necessary in the wet, but can be discarded in the dry. I like to see legible numbers on the plates and a clean machine.

The Road to 7R Success

by BOB McINTYRE

SUCCESSFUL motorcycle racing today demands two things—a fast and reliable machine and a rider in the prime of physical condition. The first requirement can be filled when a customer purchases his 7R from A.J.S., but the second is a larger job than writing a cheque. And since it's a job which I take seriously, I make special efforts to keep fit in the winter. Every week I go hill-climbing and swimming and reckon to play badminton at least three times. Badminton quickens the reflexes and strengthens the forearms, as well as promoting stamina. I used to do weight-lifting, but found it to be of little value.

Good forearms and wrists are essential for the "throw-it-about" technique necessary for success today. Wrist exercises aid here, especially for short-circuit work with its attendant calls on brute force.

"Dress for the job in hand" is a sound motto at any time—an incorrectly dressed rider cannot hope to win at road racing. *One*-piece leathers must fit snugly and not be tight. Padding only adds weight and bulk and is useless in a tumble anyway. Boots should have supple uppers so that the ankles may be flexed—the zip-back variety are excellent—and they must have the rubber soles essential to quick push-starting.

I'm not fussy about gloves provided they are of wrist length (not gauntlets), have soft leather palms and chamois backs. A cut-away in the neck-curtain of the standard A.-C.U. helmet allows the head to be craned back when lying right down and I detest face masks, scarves or hankies round the chin. Good goggles, preferably of the Italian racing pattern, last some 1½ seasons and the investment pays dividends; you can't race when you can't see properly.

When fit and properly clothed, you're ready for your 7R. Like all production machines, the "Boy Racer" cannot be sold with a universal riding position, and without good posture and comfort no rider can give of his best.

I believe in arranging the bars first, swinging the tips so that the clenched fists wrap naturally round the grips with the wrists at an easy angle. If the thumbs then act as lock-stops, the tank must be recessed; I cannot overstress this point. I like to have a saddle with a raised back so that this rest pushes against my posterior; move the saddle to achieve this. In effect, it wedges you into the 7R—I don't believe in

CONTINUED ON BACK PAGE

"BOY RACER"

A BRIEF HISTORY OF THE 7R A.J.S.

DURING its decade of development, the o.h.c. 7R A.J.S. has been the subject of such rewarding tuning that an annual increase of output of one b.h.p. has been obtained. Today, the production engine is up to 39 b.h.p. at 7,400 to 7,600 r.p.m. and this figure is by no means the ultimate that development engineer Jack Williams and his staff expect to obtain.

The terms of reference for the "Boy Racer" came from sales director and ex-road racer "Jock" West, who insisted on his company producing a machine that should not only go well, but be cheap to manufacture and overhaul and also be easy to maintain. The years since the 7R's inception in 1948 have proved the value of West's requirements, for such popularity has this Junior class mount achieved that by the end of the 1958 season 524 had been sold.

The man charged with turning these terms of reference into a design and then into working drawings was Phil Walker, chief designer. With the approval of the A.M.C. board, he produced a 348 c.c., 74 x 81 mm., single-cylinder, single o.h.c. engine running on "pool" petrol at 9 : 1 c.r.

As proof of the race-worthiness of Walker's creation, the 7R promptly annexed fourth berth in the 1948 *Senior* T.T., Geoff Murdoch up. Since then, its wins have been legion.

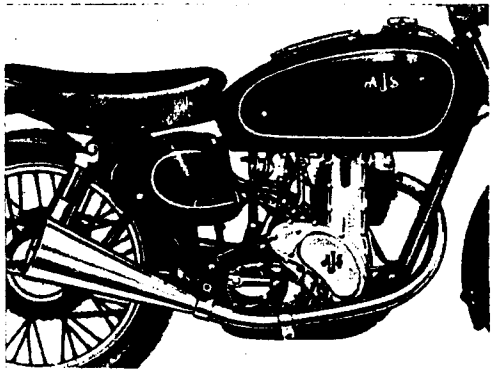
Historically, most of the development has been in the engine department. In 1950 the flywheel weight was reduced and the size of the inlet valve head increased, while the following year the inlet valve cam profile was revised and the c.r. pushed up to 9.5 : 1. A year later it went up to 10 : 1 and roller cam followers were introduced.

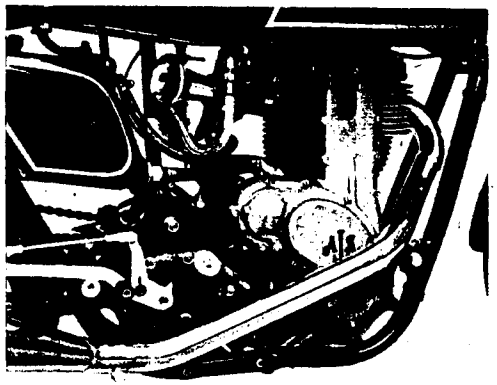
The first major changes came in 1953. On the engine side, modified types of mainshaft, mainbearing support and cylinder head were produced. For the cycle parts, a new frame was designed that could also carry the newly-introduced G45 engine. This frame had a slightly shallower head angle at 63½ deg. and the trail was increased to 3½ in.

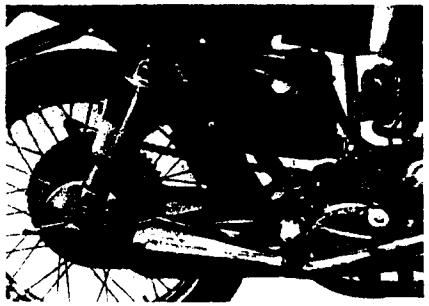
In 1956 came the revision of the bore/stroke ratio to 75.5 x 78 mm., to give a capacity of 349 c.c., and a further modification to the inlet port. The wheelbase was also shortened by ½ in. to 55½ in.

There were no structural alterations for 1957, but the output was brought up to 37.5 b.h.p. for all customers' machines. At the beginning of the present season, a new camshaft, inlet port and engine breather appeared, as well as a racing version of the already established A.M.C. gearbox.

For next season a new piston, revised seat and gearchange have already been scheduled as necessary modifications. With the remainder of the winter's development period ahead of them, the A.M.C. racing personnel may yet make other discoveries which will lead to the 1959 version of the 7R being the quickest and most desirable yet.

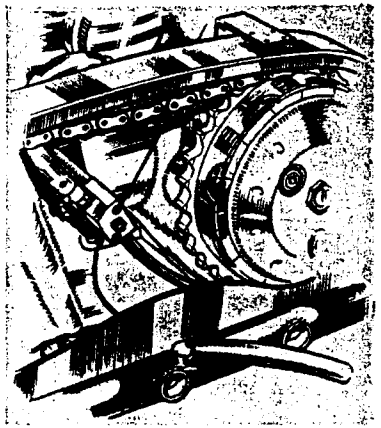




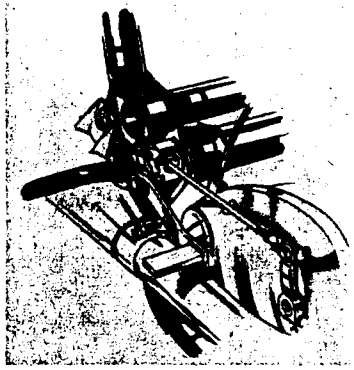


(Above left) 1949 version: note the trumpet megaphone, tank shape and backless seat. (Left) 1953 engine details; oil tank and carburetter bell-mouth shapes are typical of the period. (Below) 1955 saw the first reverse-cone megaphones; Girling legs today supersede the "jampots."

IN DETAIL

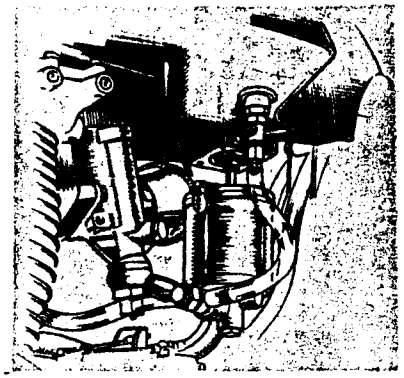


Chain oilers: (above) the primary oiler feeds on to the bottom run forward of the clutch sprocket; similarly, the secondary oiler (right) feeds the bottom run behind the gearbox output sprocket.

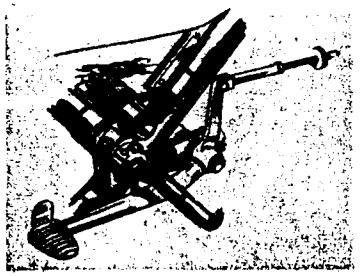


Two gearchange variants are envisaged for 1959. The remote type shown here requires the cam-plate to be reversed from the position used for a direct lever if "down-for-up" motion is to be maintained.

A SPRING BINDER FOR YOUR "SPORTS MACHINE SOUVENIRS" Application form on page 113



The pendant GP float chamber is isolated from vibration, and consequent fuel frothing, by the rubber mounting.



An adjustable abutment is provided for the brake pedal. Note also the fibre wearing pads for the secondary chain run.

1958 A.J.S. 7R
BRIEF SPECIFICATION

Engine: 349 c.c. single-cylinder four-stroke; 75.5 mm. bore by 78 mm. stroke; built-up crankshaft with caged, single-row roller big-end and steel connecting rod with plain small end; silicon-aluminium alloy piston with single Dykes-type compression ring and single Wright-type-assembly scraper ring; c.r., 10.2 : 1; light-alloy sleeved barrel; light-alloy head and rocker box; sodium-cooled exhaust and plain inlet valves; valves hairpin-spring controlled and operated by rockers from centrally disposed, single o.h. camshaft; o.h.c. drive by Weller-blade tensioned chain; claimed output, 38.5 b.h.p. at 7,600 to 7,800 r.p.m.; Amal 10GP carburetter, 1⅛-in.-bore mixing chamber with rubber-mounted GP float chamber.

Lubrication: Spur gear pumps circulating oil at 12 gal. per hour at 6,000 r.p.m.; magnetic filter in sump; gauze filter in tank; primary and secondary chain oilers with control tap and 1¾-pint reservoir; gearbox lubrication by splash.

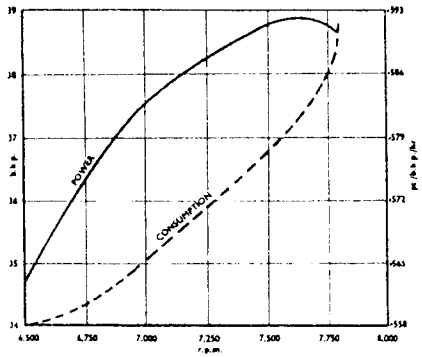
Electrical Equipment: Lucas SRR1 racing magneto, gear driven with Vernier coupling; ignition at 37 deg. BTDC, fully advanced.

Transmission: Single-row primary and secondary chains; multi-plate clutch with Klingerit inserts; rubber cush drive in clutch centre; four-speed gearbox; gear ratios on T.T. sprockets, 5, 5.5, 6.7 and 8.9 : 1.

Frame: All-welded, Reynolds 531 steel tubular cradle frame with duplex front down tubes and integral sub-frame and steering head bracing; cylinder head steady attachment points.

Suspension: Teledraulic front forks of A.M.C. design with 4½ in. of movement controlled by two-rate coil springs and corrector springs with two-way hydraulic damping and limit checks; rear springing by swinging-fork assembly pivoting on bronze bushes with Girling suspension units; spindle adjustment by ½-in. draw bolts.

Wheels: WM-1 front and WM-2 rear light-alloy rims; Dunlop racing tyres, 3.00-in. by 19-in. front and 3.25-in. by 19-in. rear; conical "Elektron" magnesium-alloy hubs with cast-iron liners, air scoops and extractor fans; 8-in.-dia. brakes, twin-leading shoe at front and single leading and trailing shoe at rear, both cable-operated; two security bolts per wheel.



Manufacturer's output and fuel consumption curves for the 1958 7R.

Tanks: Welded, light-alloy fuel and oil tanks; capacities, fuel 5½-gal., oil 8 pints; quick-release caps; vent pipes; gauze filters on outlet pipes; aeration tower in oil tank.

Dimensions: Wheelbase, 55½-in.; ground clearance, 6-in.; unladen seat height, 30-in.; dry weight, 287-lb.

Finish: Black stove enamel with gold lining; gold finish to major engine parts; chromium plating and light-alloy buffing where appropriate.

General Equipment: Kit of tools; tyre pump; magnetic rev. counter; fly-screen; number plate brackets; steering damper; glass-fibre-based racing seat; sponge rubber chin pad; K.L.G. FE280 racing plug.

Performance: Maximum speed approximately 115 m.p.h.

Price: £335 plus £82 18s. 3d. P.T.= £417 18s. 3d.

Extras: Alternative sprockets; extra low bottom gear; K.L.G. E258-2 hard plug; alcohol piston and jets.

Makers: Associated Motor Cycles Ltd., Plumstead Road, London, S.E.18.

THE MEN BEHIND THE 7R . . . . . Continued

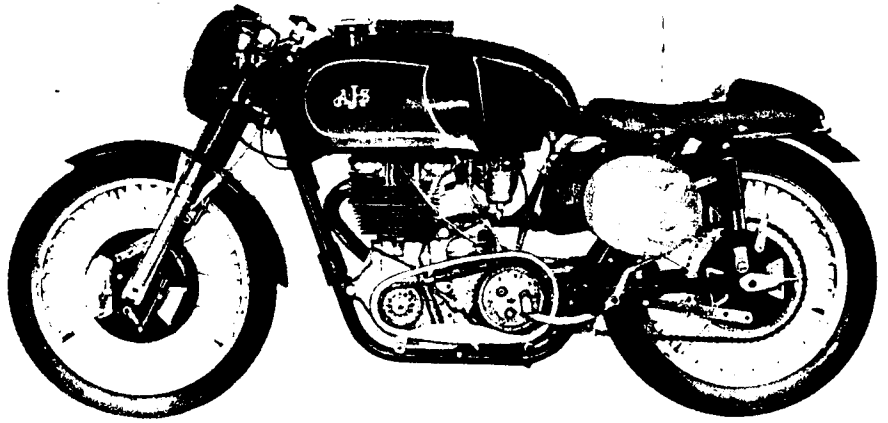
"JACK" WILLIAMS

AN active 54-year-old pipe-smoking motorcycle enthusiast, ex-road racer C. J. "Jack" Williams hails from Torquay, Devon, and is today development engineer at Associated Motor Cycles, Ltd.

Williams first raced in 1926, when he rode at Syston Park. In 1928 he attracted O'Donovan's attention and subsequently competed on Raleighs in G.P.s and T.T.s until 1931. The following year he was riding at Brooklands and in the Island on Cyril Pullin's Douglas horizontal twins.

Then came more rides on "works" machines, including Velocettes and Vincents from 1935 to 1938, though he rode a "private" Velocette in the '38 Junior T.T.

During the war, Jack Williams served in the R.A.F. as a Squadron Leader (Tech. E). He then went to Vincents, where he developed the "Picador" target aircraft engine, and from there came straight to Woolwich in 1954 with the express task of taking over the A.J.S./Matchless racing programme.



The 1958 "over the counter" 7R has Girling legs and a short-stroke 349 c.c. o.h.c. squish-head engine.

The Men Behind the 7R

"JOCK" WEST

A SPRIGHTLY and energetic 49-year-old Kentish man, John Milns West was born in Belvedere. After entering an apprenticeship in heavy engineering, he began racing in 1928 with a Zenith after an earlier introduction to motorcycling with a Levis in 1924.

In the '30s he graduated to Hartley-Ariels —on which his exploits are legendary—and then to Triumphs, finally achieving fame on the supercharged B.M.W. with which he won both the 1937 and 1938 Ulster G.P.s and came second in the 1939 T.T.

Having served with such competence in the R.A.F. during the war that, as Wg. Cdr. West, he received the O.B.E., he came to the A.J.S.-Matchless factory as sales manager and member of the works racing team. As a road racer, he continued to notch a steady succession of leader-board places until he hung up his leathers after the 1950 season. But, even now, as sales director, West still rides on the roads regularly.

PHIL WALKER

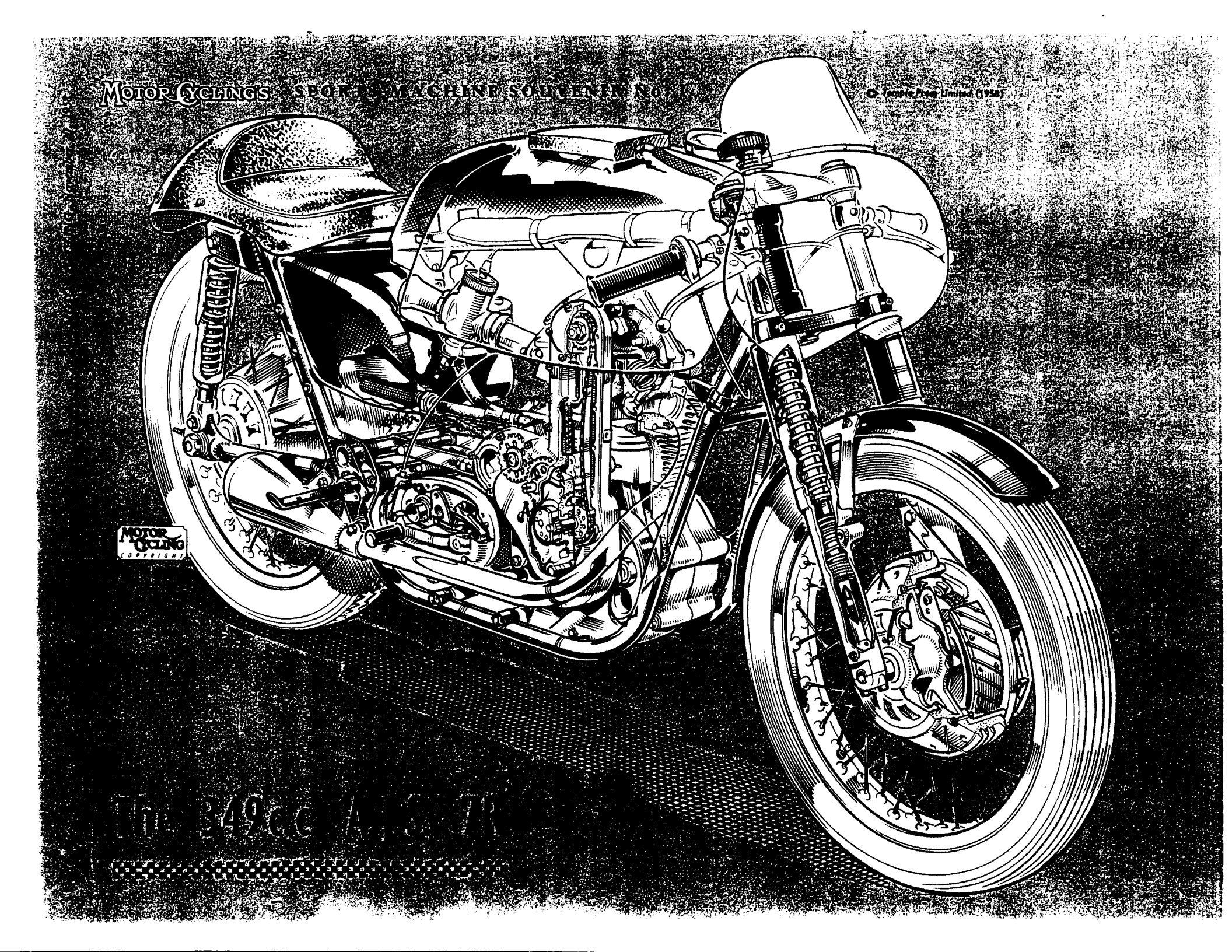
THE designer of the 7R, Phil Walker, is a quiet-spoken 58-year-old Yorkshireman from Hull, who was 17 when he joined one of A.M.C.'s parent companies, H. Collier and Sons. Starting in the machine shop, Walker soon moved to the drawing office where, in 1925, he was made chief draughtsman.

Between then and his move to the Handley-Page aircraft concern for the duration of the war, he was responsible for much of the drawing on such famous machines as the Matchless "Silver Arrow" and the M3, later known as the Model X.

On Walker's return to Woolwich in 1945, he succeeded to the post of chief designer, a position he has held ever since. In this capacity he has designed all production machines including, of course, the 7R, but excepting the G45. And his most recent work has included the design of the 250 c.c. o.h.v. touring "single."

(*Continued on Page Six*)

The three "Ws" of Woolwich: (right) "Jock" West; (below) Phil Walker; (below right) Jack Williams.


MOTOR CYCLING SPORTS MACHINE SOUVENIR No. 1
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