



Motorcycle Sport

TRACK TEST



BULTACO 348 TSS TWO-STROKE



The Baldwin Racing Developments tachometer was complete aperiodic (dead beat), and rubber mounted. It's a spark-counting device, not mechanical



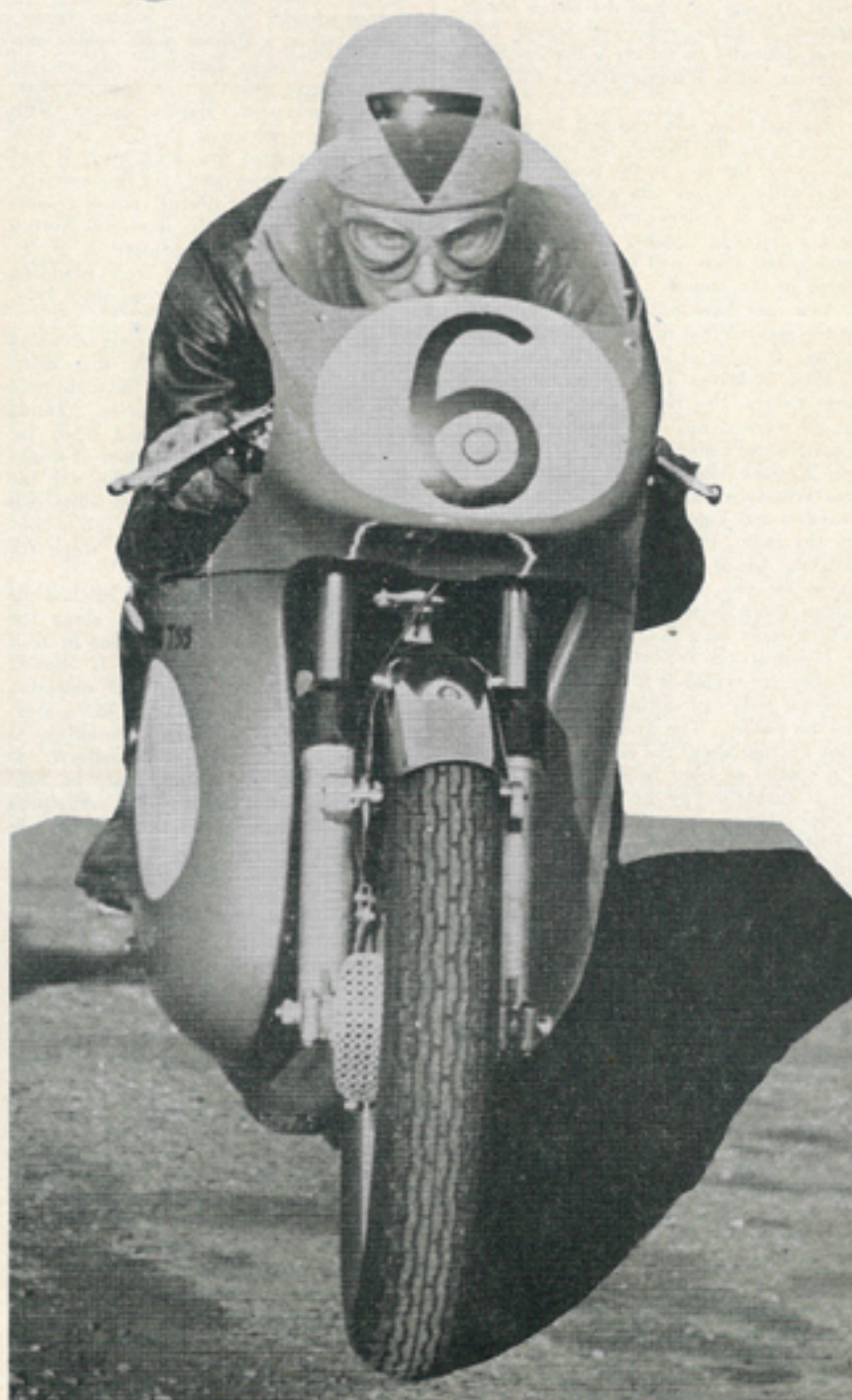
The empty peg normally accepts a telescopic steering damper. However one is quite unnecessary at Brands Hatch



Twin plugs prevent you palming this 350 off to the scrutineer as a 250!



Well ventilated two-leading-shoe front stopper



In this issue *Motorcycle Sport* embarks on a new venture. We present the first of a series of "Track Tests" of road-racing motorcycles. We intend to cover both the sporty and successful machines—as well as the interesting one-offs. The racers are being tested on an actual race track, the short-circuit of Brands Hatch, with its gradients, bumps, adverse cambers, fast and slow bends, and its high-speed straight. For *Motorcycle Sport's* Track Tests, Brands Hatch is the ideal venue. It is a real test of every aspect of a racing machine's behaviour. Testing is being done here by Bruce Main-Smith, ex-solo and sidecar competitor on tarmac and sand, and a regular contributor to this journal

If my BSA Quicky hasn't been subject to Small Heath telaesthesia consequent on Armoury Road's impending introduction of its own racer, Geoff Monty's 350 Bultaco was hitting 105 m.p.h. right on the nose at the shutting off point for Paddock Bend. Come to think of it, I might have made a wrong assumption about the TSS's unusual all-indirect five-speed box. Perhaps top isn't 1.27:1 but 0.593...

But 105 m.p.h. figures. It is just the sort of speed that a really sharp 350 should be doing at the end of Brand's Hatch's main straight. However, let's not set too much store by rev counter readings.

For that matter I didn't count the number of teeth on the sprockets Geoff said he'd got anyway.

What's the flavour of this Spanish single? That's easy. A good 350's worth, with clean power—no Yamaha sudden-death on-or-off antics—handling good enough to put bright metal amongst the tarnished grazes on the underslung expansion chamber, brakes as sweet and ample as you could want, and giving an easy a ride as you could wish for.

The chance to get on with the knitting when you're in traffic, overhauling the slow men towards the end of a race, is no mean asset.

You don't have to fret about the power band, getting the motor back on the bugle, playing the airy-fairy on the gear pedal in case it overchanges on you like many a Greeves, or wonder if it's going to waltz to Strawberry Fair over the bumps as Aer-Macchis have been known occasionally to do.

In this track test, exclusive to *Motorcycle Sport*, I didn't have traffic to contend with. The pretend-racers don't seem to frequent Brands to plonk down their ten-bobs—seven-sided or paper—when the weather turns cold. I more or less had the 1.24-mile short circuit to myself.

But its throwability could still be tasted. Line-changing was easy. And I could then have a good scratch on the wrong line without finding trouble. On the all-on-in-third sweep into the bottom straight there was a trace of sliding going on as the Dunlops transitioned from dry to a damp patch and back to dry. I didn't greatly mind. I never felt it was going to bite me.

Ever since I rode Peter Inchley's works Starmaker-Bultaco right at the beginning of things, I have had a liking for Barcelona's idea of handling. You can pin it down seemingly on its handlebar ends and it stays put.

For me, I would be buying some stronger rear springs from Geoff Monty. I had the

standard ones on the hardest setting. But I weigh 11½-stone. Despite this penalty, the handling was still top notch. In fact, I have not a single criticism to advance of it. Astonishingly, the ride was comfortable too. Compare this with some which rattle your brain-basin on your temples as you hit the brakes at the top of Pilgrim's Rise going into Druids.

It's a short, sharp anchor up there and it usually reveals poor front forks very nicely thank you.

Let's stay with the Starmaker for a moment. How does power of the new 350 compare with the Villiers device—leaving aside the difference in capacity between Monty's 350 and the Wolverhampton 250?

As different as tractor vapourising oil is from a Hagen sprint brew.

A Starmaker's very good as long as it's effervescing properly. Then it surges up the scale. However, when the froth subsides it's about as much use as the hard plug is in the mechanic's overalls when the flag's just fallen. In other words, you've got to work at it. You wish Villiers had made lots more of those very rare six-speed boxes. Once the Starmaker is up to the bloodline, it's all over. Brief, adrenalin-discharging rush, you stab

Full gun on again as I exit from Brand's notorious Paddock Bend at some 75 m.p.h. I found the ride very stable indeed here



On the quick flip from full left lean to a good right scratch through the sweet of Kidney Bend, I found the Bultaco to be exceptionally throwable. Here the camera catches me in the transitional area between the two bends

the pedal, wind it back on, and try all over again.

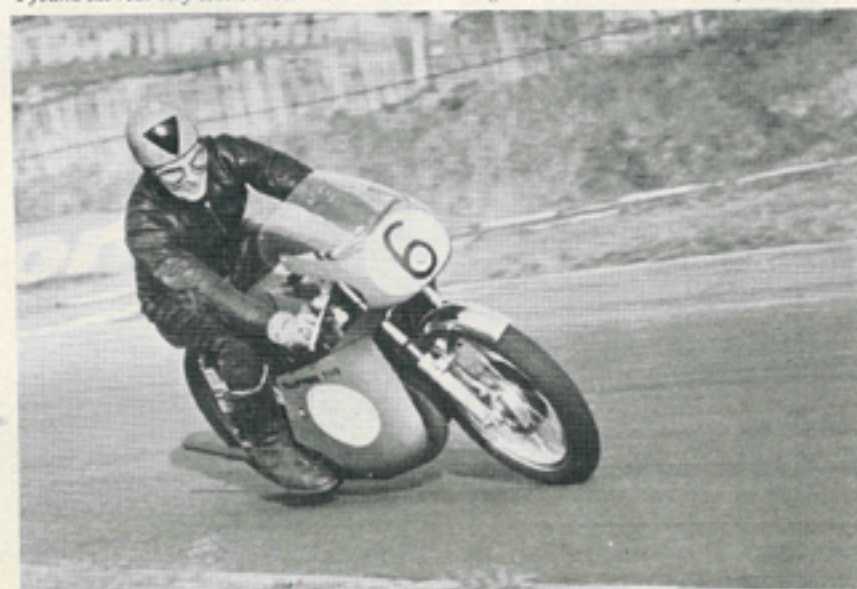
The 350 Bultaco is almost the reverse. True, the limit mark on the rev counter is similar. Geoff Monty told me 8,500. True, it feels that to hold on would be pointless anyway. There the similarities end.

This piston-ported over-square single had spread. I deliberately tackled Druids one cog too high, which knocked me down to the low fives on the tach, to see what would happen. All right, I lost time because as I eased it on round the progressive liftoff from this hairpin, I just wasn't far enough up the scale.

But it wasn't that serious. Power was there. And two-stroking.

Now the curious thing about this stroker is that it four-strokes in a way that is difficult to describe. We all know what four-stroking is by definition. But it is usually accompanied by snatchiness, a feeling of tugging on the bottom run of the chain when a combustion does take place.

This job—may be it's the twin plugs—simply misses beats. No tantrums. That ought to mean enhanced safety in the wet.





Left: Small braising strips are welded on to the black, mildsteel exhaust system to combat splitting at the tailpipe junction. Middle: Note left side secondary, accessible gearbox sprocket and brake pedal in the British position. Right: The Spanish units feature a multi-position preload arrangement and single-rate springs

Megaphonitis is a label that has rather changed its meaning. It is used, properly enough no matter what the purists say, even for machines without megaphones at all, but with expansion-contraction chamber systems, like Geoff Monty's Bultaco. However, megaphonitis is normally thought of as being rev-related. It is a function of r.p.m. rather than of throttle opening.

So, the 350 TSS stutters when it's off the hogle. But the relationship is really one of throttle opening rather than engine speed. Screw the zoom control on the right bar, even at modest engine speeds, and two-stroking and reasonable power immediately return. That's more than you could say of a Manx running a thousand too slow.

Also, the action comes back straight away, no clearing the crankcases of congestion, overrun oil and pharyngitis of the mixing chamber. As a yardstick, take it that acceleration is better than that of a late-model AJS 7R.

I went out, as is Brands custom today, following a car session. Roger Bowler, Monty's regular rider on the 350 Bultaco, came up to the gate with me to wait for the green flag. We had a long thumb-twiddle whilst they dragged the usual Mini debris off the track and swept up the remains of some tweaked Anglia's differential. I thought it would oil.

It didn't. Credit to the twin-plug setup, which is the giveaway, Mr. Scrutineer, if a customer tries to palm off one of Geoff's 350s as a 250. Incidentally, Monty runs it with a Champion/Lodge cocktail, a grade 51 for the exhaust-port plug, and a softer grade 50 next door to it.

Timing is also knocked back from a maximum recommended of 3.25mm to a scant 2.9, and the standard 420 main jet upped to a 440.

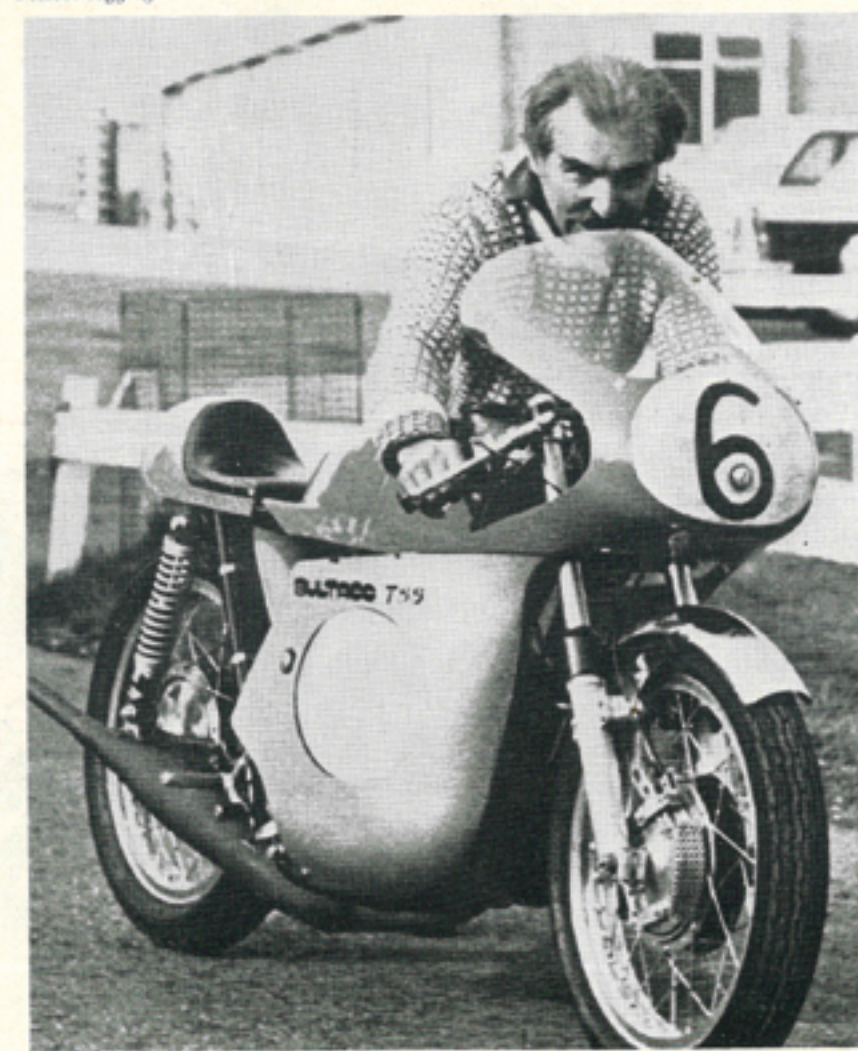
Object, states Geoff, is to "... get reliability first whilst we learn about the machine. There are only half a dozen in the country so far. Frank Shorne and George Ashton both have one, I've sold three, and this one's for Roger to ride for me during 1970. We're learning about it.

"So far, what we've found has been staggering. In seven races we haven't had to renew rings—normally that would have been done twice by now. And the main-bearing seals once; on this, not at all. We start, warm up and race on the same plugs.

The 350 TSS proved to be an easy starter. Here, agent Geoff Monty heaves it into life down the hill in Brands' paddock

Now there's two-stroke reliability and stamina for you."

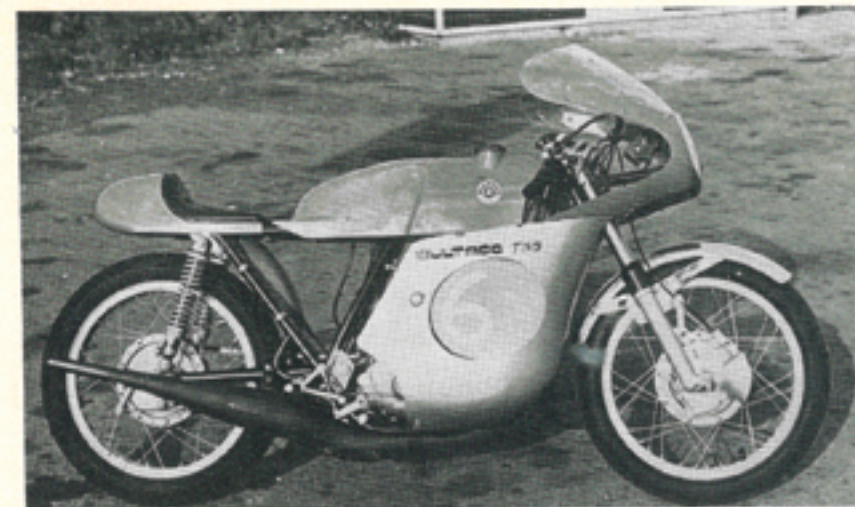
Enough of the engine. What of the transmission? First, the ratios. Monty's cogging suited me nicely. He said 8,500 as top whack which I obeyed. I'm rather a goody-goody over that. At the end of the main straight, surprise surprise the fastest part, it was about half a needle's width below the eight-and-a-half mark. Perfect cogging.



Gas engineers call pulses of gas "slugs." Here is a slug's eye view of where it's going. The carburettor is a Spanish Amal GP with remote float



After my little scratch around I found a fresh crop of grazes amongst the tarnished old ones underneath the expansion chamber



The gears were nicely spaced. Bottom's high. Can't speak for the Snetterton hairpin or Thruxton say, but at Brands the internals were OK. Second was just a wee bit revvy round Druids and the shift into third came as the sidewalls were concluding their duty. Paddock was a bit of an option between third and fourth but probably with more experience of the bike plus the usual frenzy of the actual race, fourth it would always be. Yes, internals OK.

SPECIFICATION

Engine: Single-cylinder air-cooled two-stroke, 85.2x65mm bore and stroke = 348 c.c. 11:1 compression ratio. Piston-controlled ports. Twin-plug head. Petroil lubrication. 32mm Spanish Amal GP carburettor.

Electrics: Fematron transistorized battery-less ignition with flywheel LT generator and non-mechanical circuit breaker. Fixed timing. Twin long-reach 14mm plugs.

Transmission: Gear primary (engine runs forwards), ratio 2.916:1. All-indirect five-speed gearbox; ratios 1.27, 1.12, 0.961, 0.793, 0.593:1. 1/2x1/4in chain secondary, standard sprockets, 15t gearbox, 29t wheel. All-steel, multiplate, oilbath clutch.

Frame: Duplex type with third top tube. **Suspension:** Telescopic front forks with two-way hydraulic damping. 4in travel. Swinging-arm rear with hydraulically-damped Spanish units, adjustable preload, single-rate springs. 3 1/2in travel.

Wheels: 18in light-alloy rims, 2.75in front, 3.00in rear, fitted Dunlop triangular tyres, 3.00in front, 3.00/3.25 in rear. Test pressures 23 p.s.i. front, 25 rear.

Brakes: 160x40mm twin-leading shoe front, with air scoop. Same size rear, unventilated, and of single-leading shoe type.

Tank: 4 1/2 gallons (20 litres) glassfibre. Twin taps.

Dimensions: Wheelbase 50.5in. Seat height 27.5in.

Equipment: Bultaco fairing. Test machine fitted with Bultaco tachometer. Right-side gearchange. Hydraulic and friction steering dampers.

Colour: Silver fairing, red tank, black frame. **Performances:** Claimed b.h.p., 48 at 8,500 r.p.m. Claimed maximum speed, 137 m.p.h.

Price: £585 with fairing, without tachometer.

Supplier: Monty and Ward, 110 High Street, Edenbridge, Kent. Tel.: 3636.

The nicely balanced lines of the Bultaco show to advantage in this shot. Fairing is a Bultaco factory item; it's in silver, the tank is red, the frame black

The change is beyond comment. Complete certainty and utter precision. And not heavy either. I did a series of clutchless upward and then downward swoops on the arm-waving turn-in at the end of my session—if you don't put your left mit out leaving Clearways you'll send some unsuspecting wight into the grandstand—and on those the gears were really great.

Like a lot of Spanish and Italian clutches, the lever action has a fair travel and rather more poundage than the engine capacity suggests. Noted. Also noted: the clutch really bit when asked, accepted brutal handfuls of throttle when coaxing a cold two-stroke on a cold day up the hill of Brands paddock following the first run-and-bump of the try-out. But so it should. All metal. Not sintered either. Both lots steel.

The gear primary was silent though who cares on a racer. Its existence kills one bogey, primary-transmission unreliability.

Well that's how I found the 350 TSS. How does Roger rate it? He gives it the acid test, not me, in the hurly-burly of the actual event.

"You ask me to compare it with a 7R or 350 Manx? It does so very well indeed. As quick as a 350 Yamaha? Dunno yet, but it eats 251s."

Does it produce 48 b.h.p.? Not even Monty believes that, any more than you or I. "They're what I call two-stroke horsepowers" Geoff comments.

But who cares what the sales literature says? Not us. What really counts is what happens when the flag drops. My assessment is that the Bultaco will be right up there with the pack. 1970 will see if I'm right.



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