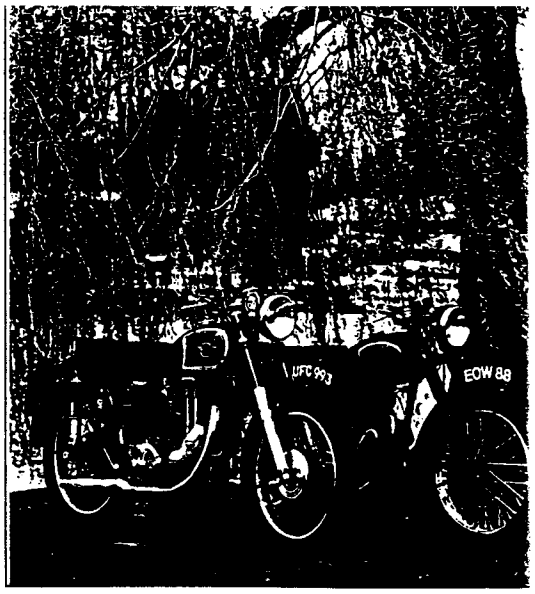
# buying a classic

## AJS & matchless heavyweight singles (1945-1966)

### G3, model 16, G80, model 18




**The overhead valve single cylinder machine, with low engine speed and bags of torque, is the epitome of the British motorcycle of the pre and post-war period and nothing exemplified it better than AMC's heavyweights. Rebekka Smith looks at the ins and outs of buying and running these perennial favourites**

While the continentals were producing increasingly sophisticated multis — "pussy-purring fours" as they were derisively named by dedicated singles riders — British manufacturers stuck to the tried and tested. We dominated the world market, after all, so why listen to the critics who argued that the single was obsolescent and that Britain was lagging behind in not adopting more innovative designs?

After the war, manufacturers simply put their pre-war models back into production to meet demand for transport. The 350cc and 500cc AMC singles, produced for over two decades after the war, are typical of this genre. Although they had a staid image, they enjoyed a good reputation for excellent build quality and paint finish, and consequently sold in large numbers. Their design can be traced back to models of the 1930s and, for the most part, only minor changes were made throughout. Initially, the offroad versions of these machines deviated little from the road versions but, in later years, highly specialised models for both trials and scrambles were produced.

AMC — Associated Motor Cycles, to give it its full title — came about through the amalgamation of three motorcycle marques. The Wolverhampton based AJS concern was acquired by Matchless in 1931, but it wasn't until the Sunbeam name was added to the fold, in 1937, that the AMC title was registered. In 1943, Sunbeam was sold on to BSA but, by then, the name had stuck and both of the remaining marques — Matchless and AJS — were increasingly referred to as a pair, their ranges becoming more and more common.

The first truly joint venture came in 1935 when both marques introduced a 348cc long-stroke single cylinder model: the Matchless G3 Clubman and the AJS Model 16. Four years later, the overhead valve single was being supplied to the British armed forces with a lower compression engine for solo despatch rider use. Produced until 1942, the W39/G3 featured a four-speed Burman gearbox, tubular cycle frame and girder-type front fork suspension. As early as 1941, however, a lighter machine and the first British motorcycle to feature telescopic front fork suspension units — called Teledraulics — was introduced. The speed, comfort and superior roadholding of the W41/G3L made it extremely popular with military riders and, together with the G3, Matchless produced more than 80,000 WD machines. After the war, it was more or less a matter of swapping the overall khaki for civilian garb and AMC was ready to supply the peacetime market, too.

After the war, the race was on to supply machines both for export and the home market. There was no time to think about new designs and in 1945 AMC launched two AJS civilian models — the 348cc 16M and 497cc 18 — quickly followed by the Matchless 348cc G3L and 497cc G80 Clubman. All were based on the WD G3L with a 93mm stroke combined with a 69mm bore for the 350 and 82.5mm bore for the 500. Compression was 6.35 to 1 in the smaller engine and 6.01 to 1 in the larger but they shared the conventional British construction of overhead valves, separate (four-speed Burman) gearbox and dry sump lubrication. Although Teledraulics were fitted, the rear end was rigid. In fact, the rigid models continued in production until 1955, long after the first spring-frame models were introduced.

The main difference between the two marques was that the standard Lucas magneto was positioned in front of the cylinder on the AJS and behind the cylinder on the Matchless. With the dynamo (also Lucas, but unique to AMC as it was chain driven) behind the crankcase and above the gearbox, removal was difficult and sorting out any charging problems became a major headache.

Competition models were launched in 1946 — designated by adding the letter C to each of the model types — but these differed little from standard apart from lowered gearing, upswept silencers, heavy-gauge spokes and trials pattern tyres. Minor changes were made to all eight models in the following two years and, in 1947, four more versions — given the suffix S — were introduced with swinging arm rear suspension. Initially for export only, they were fitted with hydraulically damped suspension units of AMC's own manufacture — nicknamed "Candlesticks" due to their slim shape. Unfortunately, they were prone to leakage and the damping was therefore short-lived.

While the road models remained much the same for 1950, the competition machines underwent some major modifications. Following changes made in the previous two years to the works trials bikes, the offroad models were fitted with all-alloy engines with cast-in valves seats and iron cylinder liner. A smaller 2 1/4 gallon petrol tank improved the appearance of the bikes enormously, while a new, cylindrical toolbox was neatly stowed away beneath the saddle.

An improvement to the spring-frame models was the introduction of new rear suspension units in 1951. Dubbed "Jampots", they had a larger diameter than the Candlesticks and therefore greater capacity, but they were still quite leaky and provided variable damping. In 1957 they were replaced with Girling units. The road models were fitted with a light alloy cylinder head with cast-iron valve inserts and alloy pushrods and, by the following year, all models had been fitted with a new Burman B52 gearbox which was more compact. The magneto on the Matchless models was finally moved to the same position — in front of the cylinder — as the AJS, making the two marques virtually identical.

Because of the shortage of nickel, chrome-plated parts had to be kept to a minimum and wheel rims and other details were finished using what AMC called an "Argenising" process. This produced the appearance of matt aluminium. No major changes were made until the turn of the decade: minor modifications included a stiffened crankshaft in 1954; frame redesign and increased compression (1956); new clutch and AMC gearbox to replace the Burman (1957) and

## SPECIFICATION AMC 16M/G3L 1945-55

### ENGINE

| | |
|---|---|
| TYPE | [illegible] stroke single-cylinder |
| BORE & STROKE | 69 x 93mm |
| CAPACITY | 348cc |
| COMPRESSION | [illegible] = 6.53 |
| POWER | [illegible] @ 5600rpm |
| CARBURATION | [illegible] 376) |
| | [illegible] (6/0) |

### TRANSMISSION

| | |
|---|---|
| CLUTCH | Multi-plate wet |
| GEARBOX | CP Road (1945-51), B52 (1952-55) |
| RATIOS | [illegible] (CP); [illegible] (B52) |
| PRIMARY DRIVE | 72 x 5/16in chain |
| FINAL DRIVE | 5/8 x 3/8in chain |

### ELECTRICAL

| | |
|---|---|
| IGNITION | Magneto |
| GENERATOR | Dynamo |

### CYCLE PARTS

| | |
|---|---|
| FRAME TYPE | Single downtube cradle |
| SUSPENSION | |
| Front | Telescopic |
| Rear | Rigid |
| WHEELBASE | 54in |
| SEAT HEIGHT | 30in |
| GROUND CLEARANCE | 5.5in |
| WEIGHT | 344lb |
| TYRES | 3.25 x 19 front, 3.25 x 19 rear |
| BRAKES | 6.5in front, 6.5in rear (1948—7) |
| FUEL TANK | 3 gallons |
| OIL TANK | 4 pints |

alternator electrics and coil ignition (1958).

In 1960, a full cradle frame with duplex downtubes was introduced on all but the trials models. The scrambles models had been given new short-stroke engines as early as 1955 and, in 1962, the 350 road models followed suit. Confusingly, they were named the new Model 16 and new G3, followed two years later by the new Model 18 and new G80 with their over-square engines of 86mm x 85.5mm; the S was, of course, no longer needed as all had rear suspension. Norton had been acquired by AMC in 1953 and evidence of this could be seen in the adoption, in 1964, of Norton Roadholder front forks and Norton front and rear wheels throughout the range. By now the AMC heavyweight singles were losing their appeal as learners were restricted to 250cc machines and there were plenty of attractive twins — particularly Japanese — to entice them once they had passed their test. On the competition side, too, the four-stroke was rapidly losing ground to the much easier to handle two-strokes coming on to the scene. Nevertheless a new competition model, the Matchless G85CS (there was no AJS equivalent) was introduced in 1966, the year that production of the road models finally

## SPECIFICATION AMC 16MS/G3LS 1949-63

### ENGINE

| | |
|---|---|
| TYPE | Ohv four-stroke single-cylinder |
| BORE & STROKE | 69 x 93mm (1962—74 x 81) |
| CAPACITY | 348cc |
| COMPRESSION | 6.31 (1952—6.53, 1956—7.5, 1962—8.5) |
| POWER | 16bhp @ 5600rpm (1956—17.5/50, 1962—23/6200) |
| CARBURATION | Type 76 (1955—376, Un (1954—11/16) |

### TRANSMISSION

| | |
|---|---|
| CLUTCH | Multi-plate wet |
| GEARBOX | CP Road (1949-51), B52 (1952-56), AMC (1957-59), AMC 1960 (1960-63) |
| RATIOS | 2.667, 1.76, 1.278 (CP Road), 2.654, 1.697, 1.307 (B52), 2.67, 1.77, 1.35 (AMC), 2.56, 1.70, 1.22 (AMC 1960) |
| PRIMARY DRIVE | 72 x 5/16in chain |
| FINAL DRIVE | 5/8 x 3/8in chain |

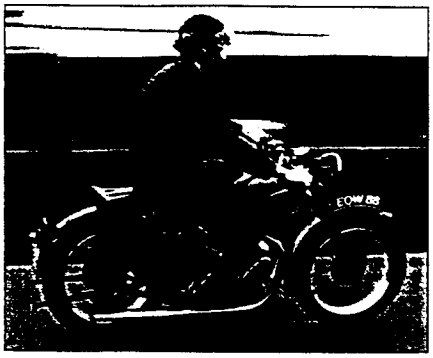
### ELECTRICAL

| | |
|---|---|
| IGNITION | Magneto (1958—coil) |
| GENERATOR | Dynamo (1958—alternator) |

### CYCLE PARTS

| | |
|---|---|
| FRAME TYPE | Single downtube cradle, Duplex full cradle (1960-63) |
| SUSPENSION | |
| Front | Telescopic |
| Rear | Swinging arm |
| WHEELBASE | 55.2in |
| SEAT HEIGHT | 31in |
| GROUND CLEARANCE | 5.5in |
| WEIGHT | 380lb |
| TYRES | 3.25 x 19 front, 3.25 x 19 rear (1963—18) |
| BRAKES | 7in front, 7in rear |
| FUEL TANK | 3 gallons (1955—3.75, 1962—4.2) |
| OIL TANK | 4 pints (1956—5) |

**The heavyweight singles are reliable plodders; 350s top out at just under 80mph, 500s around 65; fuel consumption averages 72mpg for the smaller models, 61 for bigger**



## SPECIFICATION AMC NEW 16/G3 1963-66

### ENGINE

| | |
|---|---|
| TYPE | Ohv four-stroke single-cylinder |
| BORE & STROKE | 72 x 85.5mm |
| CAPACITY | 348cc |
| COMPRESSION | 9.0:1 |
| CARBURATION | Type 389 1 1/8in |

### TRANSMISSION

| | |
|---|---|
| CLUTCH | Multi-plate wet |
| GEARBOX | AMC 1960 |
| RATIOS | 2.56:1, 1.70:1, 1.22:1 |
| PRIMARY DRIVE | 72 x 5/16in chain |
| FINAL DRIVE | 5/8 x 3/8in chain |

### ELECTRICAL

| | |
|---|---|
| IGNITION | Coil |
| GENERATOR | Alternator |

### CYCLE PARTS

| | |
|---|---|
| FRAME TYPE | Duplex full cradle |
| SUSPENSION | |
| Front | Telescopic |
| Rear | Swinging arm |
| WHEELBASE | 55in |
| WEIGHT | 382lb |
| TYRES | 3.25 x 18 front, 3.25 x 18 rear |
| BRAKES | 8in front, 7in rear |
| FUEL TANK | 4 gallons |
| OIL TANK | 4 pints |

came to an end, and it remained in production until 1969.

## AN OWNER'S VIEW

**Owner:** George Egan
**Model:** 1959 16MS alternator version
**Miles on clock:** "A bit of a mystery, as with most bikes of this age where the speedo has been wrecked or repaired and zeroed. I've done 8,000 miles on it."
**Time owned:** 2 years
**Purchase price:** Bought for £1,150 as a runner from Eddie Bonnet, a small dealer in Cardiff. George rewired the bike immediately, because he didn't like the look of it, although the bike was perfectly rideable as it was. He recovered the seat with a cover bought from RK Leighton and "slapped some paint on the tank, but I'll have to do that again because I didn't do a very good job of it."
**Use:** Pleasure. George uses the bike at least twice a week on trips of between 50 and 150 miles, depending on time available and weather.
**Restoration problems:** A few months ago, George rebuilt the engine and the only tricky job was reaming out the main bush on the non drive side. "There are two ball races on the drive side, and on the points side a 1 1/4 inch diameter bush, about two inches long, which has to be reamed in situ along the crankshaft to get it true." Apart from the main bearings, a burnt exhaust valve had to be replaced and, of course, new gaskets fitted. Although the clutch basket was in good

## SPECIFICATION AMC 18/G80 1945-55

### ENGINE

TYPE: Ohv, four-stroke single cylinder
BORE & STROKE: 82.5 x 93mm
CAPACITY: 497cc
COMPRESSION: 5.9:1 (1952 — 6.26)
POWER: 23bhp @ 5400rpm
CARBURATION: Type 89 (1955 — 389) 1 3/32in (1954 — 1 5/32)

### TRANSMISSION

CLUTCH: Multi-plate wet
GEARBOX: CP Road (1945-51); B52 (1952-55)
RATIOS: 2.667, 1.761, 1.278:1 (CP); 2.654, 1.697, 1.307:1 (B52)
PRIMARY DRIVE: 1/2 x 5/16in chain
FINAL DRIVE: 5/8 x 3/8in chain

### ELECTRICAL

IGNITION: Magneto
GENERATOR: Dynamo

### CYCLE PARTS

FRAME TYPE: Single downtube cradle
SUSPENSION
Front: Telescopic
Rear: Rigid
WHEELBASE: 54in
SEAT HEIGHT: 30in
GROUND CLEARANCE: 5.5in
WEIGHT: 353lb
TYRES: 3.25 x 19 front; 3.25 x 19 rear (1948 — 3.50 x 19)
BRAKES: 6.5in front; 6.5in rear (1948 — 7)
FUEL TANK: 3 gallons
OIL TANK: 4 pints

## SPECIFICATION AMC 18S/G80S 1949-63

### ENGINE

TYPE: Ohv, four-stroke single cylinder
BORE & STROKE: 82.5 x 93mm
CAPACITY: 497cc
COMPRESSION: 5.9:1 (1952 — 6.26; 1956 — 7.3)
POWER: 23bhp @ 5400rpm (1956 — 26bhp @ 5500rpm)
CARBURATION: Type 89 (1955 — 389) 1 3/32in (1954 — 1 5/32)

### TRANSMISSION

CLUTCH: Multi-plate wet
GEARBOX: CP Road (1949-51); B52 (1952-56); AMC (1957-59); AMC 1960 (1960-63)
RATIOS: 2.667, 1.761, 1.278:1 (CP Road); 2.654, 1.697, 1.307:1 (B52); 2.67, 1.77, 1.35:1 (AMC); 2.56, 1.70, 1.22:1 (AMC 1960)
PRIMARY DRIVE: 1/2 x 5/16in chain
FINAL DRIVE: 5/8 x 3/8in chain

### ELECTRICAL

IGNITION: Magneto (1958 — coil)
GENERATOR: Dynamo (1958 — alternator)

### CYCLE PARTS

FRAME TYPE: Single downtube cradle; Duplex full cradle (1960-63)
SUSPENSION
Front: Telescopic
Rear: Swinging arm
WHEELBASE: 55.2in
SEAT HEIGHT: 31in
GROUND CLEARANCE: 5.5in
WEIGHT: 390lb
TYRES: 3.25 x 19 front (1963 — 18); 3.50 x 19 rear (1963 — 18)
BRAKES: 7in front; 7in rear
FUEL TANK: 3 gallons (1954 — 3.75)
OIL TANK: 4 pints (1956 — 5)

## SPECIFICATION AMC NEW 18/G80 1963-66

### ENGINE

TYPE: Ohv, four-stroke single cylinder
BORE & STROKE: 86 x 85.5mm
CAPACITY: 497cc
COMPRESSION: 7.3:1
CARBURATION: Type 89 (1955 — 389) 1 3/32in (1954 — 1 5/32)

### TRANSMISSION

CLUTCH: Multi-plate wet
GEARBOX: AMC 1960
RATIOS: 2.56, 1.70, 1.22:1
PRIMARY DRIVE: 1/2 x 5/16in chain
FINAL DRIVE: 5/8 x 3/8in chain

### ELECTRICAL

IGNITION: Coil
GENERATOR: Alternator

### CYCLE PARTS

FRAME TYPE: Duplex full cradle
SUSPENSION
Front: Telescopic
Rear: Swinging arm
WHEELBASE: 55in
WEIGHT: 394lb
TYRES: 3.25 x 18 front; 3.50 x 18 rear
BRAKES: 8in front; 7in rear
FUEL TANK: 4 gallons
OIL TANK: 4 pints

### PRICE RANGE

*Recent auction prices (including condition where known)*

AJS 18S, 1951, £2415 (Brooks)
AJS 18S, 1951, £1955, Very good cond, (Sotheby's)
AJS 350 Trials, 1958, £4600, Very good cond, (Sotheby's)
AJS Jampot 350, 1954, £1100 (Palmer Snell)
Matchless 350, 1954, £57, Incomplete, (Sotheby's)
Matchless Competition G3, 1956, £483, Poor cond. (Sotheby's)
Matchless G3, 1939, £1058, (Sotheby's)
Matchless G3, 1957, £1300, (Palmer Snell)
Matchless G3LS, 1957, £1380, Good cond, (Sotheby's)
Matchless G80, 1955, £1840, Very good cond, (Sotheby's)
Matchless G80, 1959, £1100, (Palmer Snell)
Matchless 350, 1953, £1150, Tidy cond, (Sotheby's)
Matchless G3L, 1957, £1150, Good cond, (Sotheby's)

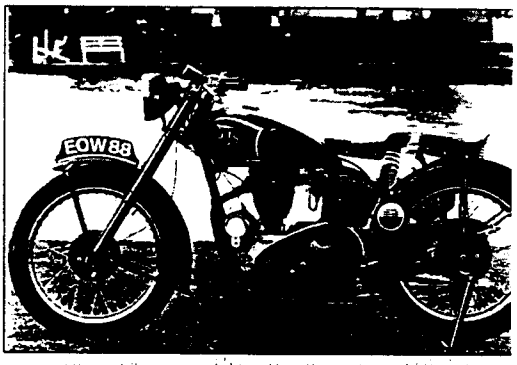
condition, he's replacing the clutch at the moment because the old one had begun to slip. The new clutch has bonded plates and new springs will also be fitted.

**Spares:** the AJS & Matchless Owners Club runs a spares scheme run from the Northants Classic Bike Centre in Irthlingborough. You pay just £5 to join the scheme — only members are eligible to buy — and get a 10% discount on all your purchases.

**Running problems:** None

**Oil:** George uses Silkolene SAE 50 and changes it every 1,000 miles. "I always do that religiously, even with my car."

**Tyres:** The tyres are the same as when bought and are typical of that era. George plans on replacing them soon, not because the tread is worn — which it is not — but because he is concerned about the walls cracking through age.




**Sealing the primary chaincase effectively remained a problem until the cast alloy covers were introduced along with alternator electrics**

**Classically simple black finish and no-nonsense handlebar layout; the heavyweight singles are famously simple to work on and relaxing to ride**

## AMC SINGLES YEAR BY YEAR

| | |
|---|---|
| 1945-6: | Iron engine, coil valve springs, Teledraulics |
| 1947: | Two start oil pump, shorter conrod |
| 1948: | 7in brakes |
| 1949: | Optional rear suspension by Candlesticks; hairpin valve springs |
| 1950: | Deeper mudguards, adjustable footrests, centre stand (spring frame only) and sidestand, five spring clutch (500s only) |
| 1951: | Aluminium alloy cylinder heads with hairpin valve springs, new tank badges, Jampots |
| 1952: | Chrome replaced by aluminised finish or enamel, new tank badges, Burman B52 gearbox, Matchless magnetos repositioned in front of engine |
| 1953: | Twin seat option, chrome returns |
| 1954: | Lighter flywheels, full width front hub, ATD fitted to 500s |
| 1955: | Amal Monobloc carbs, ATD for 350s |
| 1956: | Higher compression, frame modified, new oil tank |
| 1957: | AMC gearbox and clutch, Girling rear suspension |
| 1958: | Alternator, cast alloy primary chaincase, coil ignition |
| 1959: | Deeper mudguards |
| 1960: | Duplex frame, revised gear ratios |
| 1961: | Shorter mudguards, larger plastic tank badges |
| 1962: | Short-stroke 350 motor (74 x 81mm), Mazac tank badges (knee-knockers), five plate clutch, Sceptre (AJS) and Mercury (Matchless) model names for 350s |
| 1963: | 18in wheels, wider brake drums, cigar silencers |
| 1964: | 350cc engine changed to 72 x 85.5mm, 500cc to 86 x 85.5mm, scrambles bottom ends, Norton-type oil pump, Roadholder forks, Norton wheels, Statesman (AJS) and Major (Matchless) model names for 500s |
| 1965: | New smaller tank badges, "lightning flash" two-tone petrol tanks |
| 1966: | Production of singles ceases |

## FRAMES

| Year | Number |
|---|---|
| 1946 | 500 |
| 1947 | 12760 |
| 1948 | 23358 |
| 1949 | 35000 |
| 1950 | 47000 |
| 1951 | 59744 |
| 1952 | 74100 |
| 1953 | 89501 |
| 1954 | A4797 |
| 1955 | A21057 |
| 1956 | 37700 |
| 1957 | 49350 |
| 1958 | 59492 |
| 1960 | 72300 |
| 1961 | 76500 |
| 1963 | A83900 |
| 1964 | 85669 |
| 1965 | 87185 (16); 87120 (G3); 86850 (18); 87144 (G80) |
| 1966 | 88277 (16); 88307 (G3); 87891 (18); 88257 (G80) |

## COLOURS

1945-46: Black enamel with single silver (Matchless) or gold (AJS) lining on petrol tank, transfers for names, chrome on rims, exhaust, pushrod tubes

1947: Matchless tank badge a chrome plated pressing, wheel rim centres lined black

1948: Chromed front brake backplate and battery strap

1949-50: Chromed rear lamp

1951: Oval metal AJS tank badge

1952: All black finish with double lining on petrol tank, Argenized wheel rims, cast tank badges

1953-7: Optional chrome tank (1954 round tank badges)

1958-9: Optional chrome or gold plated tank panels

1960-1: As 1959

1962: Standard finish black, with red (Matchless) and blue (AJS) options for all enamelled parts except white mudguards

1963: Tank lining changed to double lightning flash; colour options as before for petrol and oil tanks and battery box

1964-6: Colour option for petrol tank only; blue becomes polychromatic

**Cruising speed:** 50-55mph, with a top speed of 75mph.

**Overall opinion:** George's model is definitely one for riding and not a concours machine. It is extremely reliable and comfortable to ride two-up, which is just as well as his wife often shares the saddle with him. He started off with a couple of the 250cc models — the so-called lightweights — which he thinks have an undeservedly poor reputation, but when the 350 came up he realised it would be much more suitable for riding with a pillion.

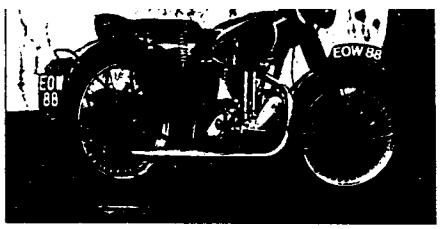
## BUYING TIPS

Establishing authenticity is, as always a priority before parting with any cash. Ernie Merryweather of Northants Classic Bike Centre says it is all a matter of common sense but, unfortunately, buying a motorcycle is something we tend to leave to our hearts rather than our heads. "Don't rush in, walk slowly, is the best advice I can give," Ernie suggests. "Join the AJS & Matchless Owners Club and seek advice from them. Read reference books like those written by Roy Bacon and, most useful in my opinion, Volume 1 of Steve Wilson's *British Motorcycles since 1950* series. Learn as much as you can about what you are looking for."

The most attractive models are the competition ones and, of the road models, the "Jampots" — produced from 1951-56 — are the most popular "though the later ones are better to ride," Ernie says, "they have alternators and better electrics. Best of all is the 1964 short-stroke."

The great virtue with the AMC singles is that they are basic, rugged workhorses and very simple to work on. "Anyone with the minimum of competence can do it. In fact, you could do most of the work on the side of the road! The worst thing to work on, because of the problems of access, is the early Matchless with its dynamo buried beneath the mag. The rest of them are very simple."

Spares are readily available; the AJS & Matchless Owners Club has £1/4 million worth of spares handled by Northants Classic Bike Centre. As with any classic machine, the




**Rigid 1947 AJS 16M looks austere and old-fashioned, but sprung saddle ensures comfort on the rigid models, and Teledraulic forks were quite an innovation**

only parts which are difficult to find are mudguards and tinware generally. For a good, restored example of the 350cc model, Ernie estimates you would have to pay between £1,750 and £2,000; the 500 would be another £400 to £500. The Jampots command a little more because of their popularity.

*Northants Classic Bike Centre, 25 Victoria Street, Irthlingborough, Northants, NN9 5RG; Tel: 01933 652155*

## OWNERS CLUB

AJS & Matchless Owners Club, Membership Secretary, Admin Office, 25 Victoria Street, Irthlingborough, Northants NN9 5RG; Tel: 01933 652155

## RECOMMENDED READING

*AJS and Matchless, the post-war models.*
Roy Bacon (Niton)
*AJS and Matchless, post-war singles.*
Roy Bacon (Niton)
*Classic British Scramblers,*
Don Morley (Osprey)
*Classic British Trials Bikes.*
Don Morley (Osprey)
*British Motor Cycles since 1950.*
Steve Wilson (Patrick Stephens Ltd)

## SPARES AVAILABILITY

Mechanical parts plentiful: tinware much less so

## ENGINE AND FRAME NUMBERS

Up until 1963 AMC included both year and model in their engine numbers so, for example an engine prefixed 54/G3 will be a Matchless 350 from 1954. The AJS & Matchless Owners Club have copies of the factory build books and will be able to match frame numbers to engines; if you are not a member, they may charge a fee. The frame numbers adjacent offer a rough guide only; after 1950 the years refer to model seasons rather than build dates. BB

**1953 Matchless G3LS has Jampots, dual seat and a much brighter finish; magneto changed position in 1952, when Burman B52 gearbox also came in**