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The opening pages of

1951 BSA Gold Star Buyer's Guide

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1951 BSA Gold Star

Factory-Correct Restoration Guide

Model year 1951 · The 500 gets the die-cast top-end — ZB32 and ZB34

KEY FACTS AT A GLANCE

- Model year 1951 — the 500 switches to the die-cast top-end with separate rocker box (Bonhams)
- The 350 does not get the die-cast top-end until 1952 (Bonhams)
- ZB32: 348 cc; ZB34: 499 cc OHV singles (Bonhams)
- 71.00 mm standard bore for the 348 cc (F.W. Thornton parts datasheet)
- Rigid frame; telescopic fork (Bonhams)
- Engine prefixes: ZB32GS / ZB34GS (Bonhams)

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1. Manufacturer history: BSA

The Birmingham Small Arms Company of Small Heath, Birmingham, built the Gold Star as the sporting peak of its overhead-valve single range. The name comes from Wednesday 30th June 1937, when a specially prepared Empire Star 500 ridden by Wal Handley achieved a 100 mph lap of the Brooklands circuit on its way to a debut race victory — and the award of the Gold Star badge that gave BSA's new sports model its evocative name (Bonhams). The Gold Star did not return to BSA's post-war range until 1949 (Bonhams): first displayed at the Earls Court Show in 1948, the B32 Goldie came with the telescopic front fork first introduced on BSA's larger models for 1946 and a new alloy cylinder barrel and head (Bonhams). From there the line ran through the 500's arrival in 1950, the swinging-arm frame in 1953, the big-fin CB of 1954, the DB of autumn 1955, and the DBD34 of 1956 — the ultimate road-going 500 Gold Star (Bonhams) — until its much-lamented demise in 1963 (Bonhams). Possibly the most successful production racing motorcycle ever, the post-war Gold Star formed the mainstay of clubman's racing in the 1950s (Bonhams): its domination of the Isle of Man Clubman's TT led to the class being dropped after Gold Star rider Bernard Codd's 1956 Senior/Junior double victory (Bonhams; Hagerty). Hagerty records 15,000 Gold Stars manufactured, of which 5,100 were DBD34s, and notes the model was sold in decent numbers in the United States — though the Clubman's trim was never very popular there, with DB Touring and Catalina scrambler examples easier to find in the US.

2. Model history: the Gold Star — 1951

For model year 1951 the larger Goldie — the 500 — is the first to switch to the new die-cast top-end with a separate rocker box (Bonhams). The 350 keeps its earlier top-end for one more year, following suit in 1952 (Bonhams). The range is still the rigid-framed ZB pair: ZB32 (348 cc) and ZB34 (499 cc).

3. About this guide

A restoration companion to the factory service literature — not a replacement. This paid guide covers the BSA Gold Star for the single model year 1951 only. It is organised as a workshop record: establish identity, preserve evidence, inspect before replacing, apply only supplied specifications, and write down every unresolved uncertainty.

How this guide is sourced: every numeric value printed here exists in a genuine source cited in the Sources section — auction-house lot essays, valuation-data records, factory-literature listings, the BSA Owners' Club machine-dating reference, and parts-manufacturer data. Anything the sourced literature does not give a number for is omitted or explicitly described as not located, never invented. Forums and restored bikes can suggest what to check; only sourced literature verifies.

A note on market naming and scope: this guide covers the post-war B-series Gold Stars only (1949–1963) — not the pre-war M24 Gold Star of 1938–39, and not the ordinary B32/B34 competition singles, which are covered in the IronHead BSA B-series line. The B32 competition alloy top end retains a separate pushrod tunnel and is not Gold Star specification (Bonhams).

4. What's new for 1951 — year-change register

Every running change into model year 1951, with why it matters for parts interchange and value. Rows for this year are the ones to check on the bench first.

- The 500 is the first to switch to the new die-cast top-end, with a separate rocker box (Bonhams).
- The 350 keeps the earlier alloy top-end for 1951 and follows suit in 1952 (Bonhams).
- Carryover otherwise: rigid frame, telescopic fork (Bonhams).

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- Buyer note: a 1951 500 without the die-cast top-end, or a 1951 350 with one, is modified or mixed — check the year-change register.

5. Model identification: variants and numbers

Variants in the range

Variant	Engine	Role	Year note
ZB32 Gold Star	348 cc (71.00 mm bore)	Sports roadster	Earlier alloy top-end (Bonhams)
ZB34 Gold Star	499 cc	Sports roadster	Die-cast top-end, separate rocker box (Bonhams)

Numbers

- Engine prefixes: ZB32GS / ZB34GS (Bonhams).
- Use the BSA Owners' Club machine-dating reference, then dispatch records (BSA Owners' Club).

6. Pre-purchase inspection

- Confirm identity first: the two identity axes for the Gold Star are engine prefix (ZB32GS / ZB34GS, BB32GS / BB34GS, CB32GS / CB34GS, DB32GS / DB34GS, DBD34GS — see section 5) and rear-frame type (rigid to 1952, swinging arm from 1953). Establish both before spending money. A claimed DBD34 must show the RRT2 number on the gearbox (Hagerty).
- Beware replicas and specials: Bonhams documents a 1949 ZB32 Gold Star replica — a genuine ZB32GS engine in period cycle parts, sold strictly as a replica. motor.nl warns buyers to watch for replicas, imitations and fakes. Bonhams warns that mixed B-series specials are common — a Gold Star engine in a touring frame, or competition parts on a roadster, is a special, not a Gold Star.
- Check engine and frame prefixes together. Bonhams documents machines whose engine is not original to the frame and machines whose serials appear re-stamped — a BSA Owners' Club dating letter is the remedy.
- Check the top end against the year: the die-cast top-end with separate rocker box arrives on the 500 for 1951 and the 350 for 1952 (Bonhams); the classic 'big fin' top-end marks the CB of 1954 (Bonhams). An early bike with big-fin parts is modified or mixed.
- Check the rear frame against the year: rigid only through 1952; swinging arm from 1953 (Bonhams). The first swinging-arm production Gold Star is documented (frame BB32A 101 / engine BB32GS 244 — Bonhams).
- Check the DBD34's defining hardware: RRT2 close-ratio gearbox (Hagerty; the RRT2 number must be on the gearbox), 190 mm front brake (Bonhams), 1.5-inch Amal carburettor and swept-back exhaust with the trumpet-like silencer (Hagerty).
- Check for repaired crash damage: Hagerty advises looking closely, as these bikes were often abused in period. Check the frame, forks and swing arm for straightness.
- Listen before buying: Hagerty's valuation essay says some piston slap is acceptable at startup, but no bearing rumble from the bottom end should be audible on a healthy motor.

7. Verified specification tables

Every number below is attributed to its source. Anything the sources do not give a number for is omitted.

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Engine and cycle parts

Item	Detail
Engine type	Air-cooled OHV single (Bonhams)
Class	348 cc (ZB32) / 499 cc (ZB34) (Bonhams)
Bore, 348 (standard)	71.00 mm (F.W. Thornton, B31/B32/B33/B34 datasheet)
Top end, ZB32	Alloy barrel and head, earlier type (Bonhams)
Top end, ZB34	Die-cast top-end with separate rocker box (Bonhams)
Frame	Rigid, ZB31-family prefix (Bonhams)
Ignition	Lucas magneto (period system — Hagerty)

8. Finishes, fasteners and markings

No complete factory color chart for this model year was located in the sources consulted. Preserve original paint wherever it survives — it is the evidence a repaint destroys. Auction descriptions of restored bikes are not color evidence.

Fasteners: BSA used Whitworth/BSF and metric threads across this era — check, don't assume. Markings: photograph every stamping before cleaning; stampings are identity evidence.

9. Restoration sequence

1. Document: photograph everything, record frame and engine numbers, bag and tag fasteners by assembly.
2. Establish identity before disassembly: engine prefix and frame type (see section 5). Bonhams documents re-stamped and mixed machines — know what you have.
3. Strip: tank, seat, electrics, exhaust, wheels, forks — keeping the rolling chassis mobile as long as possible.
4. Engine: the OHV single comes apart conventionally — rocker box, head, alloy barrel, then timing chest and bottom end. Note piston crown markings against the F.W. Thornton compression options.
5. Frame: rigid frames — check the rear triangle and headstock for cracks and crash damage; swinging-arm frames — check pivot and bushings.
6. Magneto: the period ignition is a Lucas magneto (Hagerty describes the Amal-carburettor-and-magneto combination's hard-to-keep-idling behaviour as characteristic of a healthy Goldie). Magneto rebuild is specialist work — armature, condenser, slip ring. Do not open it without the service sheet.
7. Cycle parts: the 190 mm front brake on DBD34s (Bonhams) needs correct brake plate and shoe fitment; true wheels before paint.
8. Reassembly is the reverse, torqued to the factory Service Sheets (see Sources) — this guide does not reprint torque tables it cannot source.
9. First start: Gold Stars are hard to start — that is characteristic, not a fault (Hagerty). Time the magneto, set tappets, check oil return, retorque the head after the first heat cycle per the factory literature.

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10. Electrics

The Gold Star is a magneto machine — the period ignition is the Lucas magneto, and Hagerty describes the Amal-carburettor-and-magneto combination's reluctant idle as characteristic of a healthy Goldie. Magneto rebuild is specialist work: have it done by a magneto specialist rather than guessing. The wiring loom on a 60-plus-year-old bike should be replaced, not patched.

11. Tools

- Full metric and Whitworth/BSF spanner and socket sets — BSA used both across this era.
- Torque wrench (settings from the factory workshop manual / Service Sheets, not from memory).
- Dial gauge and degree disc for ignition timing.
- Valve spring compressor; piston ring compressor.
- Wheel truing stand; spoke key.
- Multimeter for electrics testing.
- Factory workshop manual or Service Sheets for the exact year (see Sources) — this guide is a companion to them, not a replacement.

12. Troubleshooting

Hard starting — characteristic — Hagerty: a Goldie is hard to get started. Set the magneto timing and tappets to the factory literature before condemning anything; a healthy Gold Star starts reluctantly.

Won't idle cleanly — characteristic — Hagerty: the Amal-carburettor-and-magneto combination makes the Gold Star hard to keep idling. Tune the carburettor and check magneto condition before chasing the idle.

No spark — Magneto — condenser and points first, then armature/slip-ring; have the magneto professionally rebuilt rather than guessing.

Oil leaks — Pushrod tube seals, rocker-box gasket, timing-chest gasket — the OHV single's usual suspects; fix the cause, not the symptom.

Bottom-end rumble — Hagerty: no bearing rumble should be audible on a healthy motor. Any rumble means the bottom end comes apart — some piston slap at startup is acceptable, rumble is not.

Clutch heavy / slips — Hagerty notes the heavy clutch. Adjust cable and pushrod; check plate condition and primary chain tension.

Rear suspension clunks (swinging arm) — Swing-arm bushes worn — rebuild, don't shim.

13. Parts sourcing

The Gold Star is among the best-served post-war BSAs for parts: Hagerty notes that almost everything is available, and careful long-term ownership is preferable to a bike that has changed hands several times. Engine internals, gaskets, pistons (standard 71.00 mm bore for the 348 cc — F.W. Thornton), chains, cables and brake linings are all available from the specialists. Magneto rebuild is specialist work — budget for it. Correct DBD34 hardware — the RRT2 gearbox, the 190 mm front brake, the 1.5-inch Amal carburettor, the swept-back exhaust with the trumpet-like silencer (all Hagerty/Bonhams) — is the expensive part; verify the RRT2 number on the gearbox before paying a DBD34 price (Hagerty). Tinware (tanks, mudguards) is the hard part — buy the best original you can find. Always match parts to engine prefix and frame type first, year second.

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14. Value and originality

Value follows identity, originality and condition, in that order. A dispatch-confirmed, numbers-matching machine with original paint and the correct specification for its year leads; a mixed special or a replica follows at a steep discount — and Bonhams and motor.nl both warn that replicas and mixed machines circulate, so verify before paying a Gold Star price. For the DBD34, Hagerty's test is mechanical: the bike must show the RRT2 number on the gearbox, or it is not a DBD34 at the DBD34 price. The 350 'Junior' Goldie is rarer than the 500 — its production ceased in 1962, twelve months ahead of the 500 (Bonhams) — and is a 100mph-plus machine in its own right (Bonhams). In the US, the Clubman's trim was never very popular and DB Touring and Catalina scrambler examples are easier to find (Hagerty) — judge US-market bikes on their own specification. This guide gives no price figures; the market moves and asking prices are not values.

15. What this guide does not cover

- Year-specific production totals — no factory figures located in open sources (Hagerty gives the 15,000/5,100 DBD34 line total only).
- Factory paint-code charts by year — not located; section 8 gives what the sources document.
- Torque-value tables — no complete factory table located in open sources; use the Service Sheets in Sources.
- Casting and date-code tables — not located.
- Year-by-year horsepower figures — not located; only the DBD34 42 bhp figure is printed, attributed to motorbike-search-engine.co.uk.
- Carburettor jetting, tappet-clearance and ignition-timing numbers — not located in the sources consulted; the factory Instruction Manual (part 00-4010) and Service Sheets in Sources are the authority.
- Serial-number ranges inferred from isolated auction examples — documented machines are given as data points in section 5, not as ranges.

Sources

- Bonhams — 1956 BSA DBD34 Gold Star lot essay (Gold Star lineage: Earls Court 1948 display; return for 1949; B34 500 added 1950; die-cast top-end 1951 on 500, 1952 on 350; BB swinging-arm 1953; CB big-fin 1954; DB autumn 1955 with improved lubrication and stronger 350 cylinder assembly; no 350 DBD) —
  `https://cars.bonhams.com/auction/26111/lot/346/1956-bsa-499cc-dbd34-gold-star-frame-no-cb32-6024-engine-no-dbd34gs-2526/`
- Bonhams — 1963 BSA DBD34 Gold Star lot essay (DBD 1956: RRT2 close-ratio gearbox and 190 mm front brake standard; changed little until demise 1963; documented 1963 machine: frame CB32.11483 / engine DBD.34.GS.6892) —
  `https://cars.bonhams.com/auction/27329/lot/148/1963-bsa-499cc-gold-star-frame-no-cb3211483-engine-no-dbd34gs6892/`
- Bonhams — c.1959 BSA DBD34 Gold Star lot essay (RRT2/Torrington layshaft bearings noted; much-lamented demise 1963; documented 1959 machine: frame CB32 7921 / engine DBD34GS 4907) —
  `https://cars.bonhams.com/auction/19163/lot/325/c1959-bsa-499cc-gold-star-frame-no-cb32-7921-engine-no-dbd34gs-4907/`
- Bonhams — 1958 BSA DBD34 Gold Star lot essay (epitome of the Goldie; documented 1958 machine: frame CB32 7816 / engine DBD34GS 3716) —
  `https://cars.bonhams.com/auction/21135/lot/306/1958-bsa-500cc-dbd34-gold-star-frame-no-cb32-7816-engine-no-dbd34gs-3716/`
- Bonhams — c.1956 BSA 348 cc Gold Star lot essay (350 'Junior' Goldie: 100mph-plus machine, rarer than the 500; 350 production ceased 1962, twelve months ahead of the 500; documented: frame BB32 5475 / engine DB32GS 1053) —
  `https://cars.bonhams.com/auction/12186/lot/463/c1956-bsa-348cc-gold-star-frame-no-bb32-5475-engine-no-db32gs-1053/`

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