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1960 Triumph Preunit Buyer's Guide

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IRONHEAD

1960 Triumph Pre-Unit Twins

Factory-Correct Restoration Guide

This is a single-year guide. It covers the 1960 Triumph pre-unit 500/650 twin range only (6T Thunderbird, T110 Tiger 110, TR6 Trophy, T120 Bonneville). Other model years are discussed solely to mark differences — for a different year, use that year's IronHead guide. Unit-construction Triumph twins (1963-on) are not covered.

KEY FACTS AT A GLANCE

- **Model year covered:** 1960 only — 6T Thunderbird, T110 Tiger 110, TR6 Trophy, T120 Bonneville. This guide does not cover any other year except where differences are explicitly noted.
- **Construction:** pre-unit throughout — the 4-speed gearbox is a separate casting behind the engine. No unit-construction (1963-on) machine is covered.
- **650-only range; tr6 repositioned:** The pre-unit range is 650-only for the first time: the T100 is gone (unit T100A for 1960), and the 500s are now all unit-construction 'C range' machines outside this guide. The TR6 becomes 'in effect a single carburettor Bonneville' (The Classic Motorcycle).
- **Electrics:** 6-volt, breaker-point ignition. **Brakes:** drums front and rear.
- **Companion, not replacement:** this guide is written to sit beside the factory workshop manual — always verify torque values and clearances against the manual for your exact model.

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1. Manufacturer history: Triumph

Triumph began as a bicycle and motorcycle maker in Coventry, England, founded by the German immigrant Siegfried Bettmann in the 1880s; the company built its first motorcycle in 1902. In 1936 the arrival of designer Edward Turner changed the company's trajectory permanently: his 1937/38 Speed Twin — a 500 cc parallel twin — created the template (light, narrow, good-looking twin with real performance) that the whole British industry, and then the Japanese, would chase for the next forty years.

Bombing forced the move from Coventry to a new factory at Meriden in 1942, and in 1951 Triumph was sold to the BSA group. The 1950s were the boom years: the pre-unit twins — Speed Twin, Tiger 100, Thunderbird, the Trophy models, the Tiger 110 and, from 1959, the Bonneville — sold in huge numbers, overwhelmingly to the United States, through legendary importers like Johnson Motors (JoMo) on the West Coast and the Triumph Corporation (TriCor) in the East.

For the restorer, that history explains the parts landscape: enormous US sales mean used parts and pattern parts are plentiful for the popular models. It also explains the central mechanical fact of this guide: through the 1962 model year, every one of these twins kept its gearbox in a separate casting behind the engine — pre-unit construction. Engine parts, gearbox parts, and primary-drive parts do not interchange with the 1963-on unit-construction twins, and the parts books keep the two families strictly apart.

2. Model history: the pre-unit twins

Triumph's pre-unit parallel twins are the separate-gearbox machines built from the 1938 Speed Twin through the 1962 model year. The 500s (498 cc) and the 650s (649 cc, from 1950) share the same OHV parallel-twin architecture; what differs is tune, trim, and running gear. The table below is the whole family this guide series covers — the unit-construction 350/500 'C range' (3TA, 5TA, T100A) and every 1963-on unit twin are a different family and are not covered here.

Designation	Years	What changed that matters
5T Speed Twin	1946-1958 (postwar; prewar 1938-1940)	The original 500 twin; postwar production listed by Hagerty as the 1946-1958 generation. Dropped August 1958.
T100 Tiger 100	1946-1959 (postwar; prewar 1939-1940)	Sporting 500; swinging-arm frame from 1954. Pre-unit T100 gives way to the unit T100A for 1960.
TR5 Trophy	1949-1958	500 trials/scrambler twin; alloy barrel and head; swinging-arm frame from 1955.
6T Thunderbird	1950-1962	The first 650 twin, built for America; the backbone of the pre-unit big-twin range.
T110 Tiger 110	1954-1961	Sporting 650: 8.5:1 compression, lumpier cams, bigger carburettor; swinging-arm frame from launch.
TR6 Trophy	1956-1962 (pre-unit)	650 off-road twin; from 1960 in effect a single-carburettor Bonneville. Unit-construction TR6 from 1963.
T120 Bonneville	1959-1962 (pre-unit)	Twin-carburettor development of the T110, named for the 1956 Salt Flats records. Unit-construction T120 from 1963.

3. What makes the 1960 pre-unit range unique

- The pre-unit range is 650-only for the first time: the T100 is gone (unit T100A for 1960), and the 500s are now all unit-construction 'C range' machines outside this guide.

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- The TR6 becomes 'in effect a single carburettor Bonneville' (The Classic Motorcycle).

What did NOT change for 1960 (common mix-ups):

- Pre-unit construction throughout: engine and gearbox are separate castings on every model in this year's range. A unit-construction engine or gearbox does not fit and is not factory-correct for 1960.
- Drum brakes front and rear, 4-speed separate gearbox, chain primary and final drive, and 6-volt electrics are constant across the year's range.

1960 buyer cautions:

- **Verify the family before the year.** Because pre-unit and unit-construction Triumph twins look similar at a glance, confirm the separate gearbox (and the absence of a DU engine prefix) before paying a pre-unit price.
- **Verify the model by the engine prefix, not the badges.** Tanks, badges and trim are the easiest parts to swap; the engine's model-code prefix and the factory parts catalogue for the year are the authority.
- **Year boundaries are catalogue boundaries.** Triumph's model years started in the autumn; an autumn-registered machine can be next year's model. Verify against engine numbers and the parts book, not the registration date.

4. Decoding your 1960 pre-unit Triumph

Pre-1969 Triumph numbering is sequential with **no model-year code** in the number itself (the month-letter + year-code system is 1969-on). What identifies a pre-unit twin is the combination of the engine's model-code prefix (documented examples: 5T, TR5, with NA suffixes on period machines), the separate gearbox, and the factory parts catalogue's engine-number breakpoints:

- Factory Instruction Manual No. 16 (Jan 1960) keys its pre-unit coverage to Eng No 0945 and D101 (September 1956 onwards).

The engine number is stamped on the left crankcase below the cylinder barrel; the frame number is on the steering head. On an original machine the two should correspond. Triumph did not publish model-year production splits in the sources checked — catalogue breakpoints bound the coverage; they are not built totals. For machine dating, the TOMCC and Vintage Triumph Register dating services are the marque authorities.

5. Engine — technical restoration data

The table below is the 1960 range's technical core. Every figure is sourced; where no verified factory figure was found in the sources checked, the guide says so explicitly rather than printing a plausible number. Use the factory workshop manual for your exact model as the final authority.

Model	Engine	Bore x stroke	Carburetion	Frame
6T Thunderbird	649 cc OHV parallel twin, pre-unit	71.0 mm x 82.0 mm	Single Amal	Swinging-arm frame across the range.
T110 Tiger 110	649 cc OHV parallel twin, pre-unit	71.0 mm x 82.0 mm	Single Amal (larger bore)	Swinging-arm frame across the range.
TR6 Trophy	649 cc OHV parallel twin, pre-unit	71.0 mm x 82.0 mm	Single Amal	Swinging-arm frame across the range.
T120 Bonneville	649 cc OHV parallel twin, pre-unit	71.0 mm x 82.0 mm	Twin Amal	Swinging-arm frame across the range.

Common specification across the 1960 range: 4-speed constant-mesh gearbox, separate from the engine (the defining pre-unit feature); chain primary drive; wet multi-plate clutch; chain final drive. Drum brakes front and rear. Wire-spoked wheels. 6-volt electrics (12-volt did not arrive until the 1964 model year, documented on the Bonneville

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line). Breaker-point ignition — magneto or battery-and-coil depending on year and model; verify against the factory parts book for the year.

- **6T Thunderbird:** Touring 650 twin. The 650 that opened the big-twin era (1950). Verify the exact Amal type against the factory parts book for the year.
- **T110 Tiger 110:** Sports 650 twin. 8.5:1 compression, lumpier cams, heavier crank (The Classic Motorcycle). Verify the exact Amal type against the factory parts book for the year.
- **TR6 Trophy:** Off-road 650 twin. From 1960 'in effect a single carburettor Bonneville' (The Classic Motorcycle). Verify the exact Amal type against the factory parts book for the year.
- **T120 Bonneville:** Twin-carb sports 650. Twin-carburettor development of the T110; ~46 bhp period figure for the twin-carb 650. Verify the exact Amal type against the factory parts book for the year.

Not printed — no verified figure in the sources checked: compression ratios (except the T110's documented 8.5:1), fuel capacities, and factory power claims beyond the attributed figures above. Do not guess; use the factory manual.

6. Transmission, clutch and primary drive

Every 1960 pre-unit twin runs a 4-speed constant-mesh gearbox in a **separate casting** behind the engine — the defining pre-unit feature and the reason unit-construction gearbox internals do not fit. Wet multi-plate clutch; chain primary drive; chain final drive. Rebuild practice is standard pre-unit work: inspect gear dogs and slots for rounding, replace bearings and seals as a set, check clutch-plate flatness and basket notching, and set primary-chain tension and clutch adjustment to the factory manual before judging gearbox behavior. The separate gearbox is also the easiest authenticity check on a claimed 1960 machine: one crankcase casting containing both engine and gearbox is a 1963-on unit, not a pre-unit.

7. Frame, suspension, wheels and brakes

Frame and running gear for 1960: **Swinging-arm frame across the range.** Brakes are drums front and rear on every model; wheels are wire-spoked. Wheel and brake originality is checked as a set — hub, brake plate, and fork fitment must all agree with the year's specification in Section 3. Girder forks are prewar history by 1960: every machine in this year's range wears a telescopic fork.

8. Electrics, ignition and instruments

6-volt electrics with breaker-point ignition across the 1960 range — the pre-unit twins predate the 12-volt changeover documented for the 1964 model year on the Bonneville line. Fit a new wiring harness (original insulation is finished), rebuild or replace the switches, fit the correct battery, and test the charging system under load. Set timing to the factory manual before attempting any carburetion tuning. Magneto or battery-and-coil ignition varies by year and model — verify against the factory parts book for the year before ordering ignition parts.

9. Paint, trim and finishes

No factory-verified 1960 color palette was found in the sources checked for this guide — not in the factory workshop-manual material reviewed, not in the period references consulted. For a 1960 restoration: verify the color against the factory parts book and a period brochure for the year's models; treat any repainted survivor as evidence of nothing; and do not trust color names repeated on forums without a factory source. This guide prints no 1960 palette rather than a dubious one.

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10. Production and rarity

Triumph did not publish model-year production splits in the sources checked. The verifiable bounds are the factory parts catalogues' engine-number breakpoints (Section 4): catalogue coverage is not the same as built totals, and sequential numbering means allocations cannot be read as production. For context, the pre-unit twins were mass-market machines built overwhelmingly for export — American-market survivors dominate the parts and knowledge base, which is why US-specification details (Johnson Motors and TriCor import fittings) dominate the restoration record.

11. Corrosion and wear areas to inspect

Check every one of these before committing to the restoration — they are the places 1960 pre-unit Triumphs hide their expensive surprises.

- **Mudguards and rims:** chrome over steel; stone chips become rust quickly. Original chrome is thin — rechroming is usually required, not polishing.
- **Exhaust system:** siamesed and high-pipe systems rot from the inside out. Check collector areas and silencer seams.
- **Frame:** inspect the steering head and swingarm pivot areas for cracks and previous repairs; check inside the tubes for rust where paint has failed.
- **Separate gearbox:** the pre-unit gearbox's separate casting means its own bearings, seals and mounts — a weeping or noisy box is a full strip, not a gasket.
- **Fasteners and brightwork:** original cadmium/zinc plating is long gone on most survivors; corrosion here is cosmetic but pervasive.
- **Fuel tank interior:** 60-year-old tanks rust from the inside. Verify with a borescope before paint — a rusty tank ruins fresh paint and carburetors alike.
- **Electrical connections:** 6-volt systems are unforgiving of corroded connections. Every bullet connector and ground point needs cleaning or replacement.

12. Restoration sequence

Work in an order that never forces you to undo finished work. The sequence below is the standard professional order for a pre-unit Triumph twin; the notes flag where the 1960 range needs special attention.

1. **Document everything first.** Photograph the complete bike from all sides, then every assembly before you touch a fastener. Record the frame and engine numbers (see Section 4) and check them against the catalogue breakpoints before spending money — a mis-described year or a unit-construction engine in pre-unit clothing is the most expensive restoration mistake.
2. **Assess, don't strip.** Inventory what's original, what's period-correct, what's wrong-year, and what's missing. On a 1960 machine, pay particular attention to separate-gearbox originality and to the frame type (rigid/sprung-hub vs. swinging arm) for the year.
3. **Engine and gearbox out; frame inspection.** Check the frame for crash damage, cracks at the steering head and swingarm pivot, and previous repairs. The pre-unit engine and gearbox come out as two separate units — support each independently.
4. **Engine rebuild.** Split only as far as needed. Measure everything: bore, crank journals, cam bushings, valve guides. Rebores on these barrels are routine, but match pistons to the measured clearance, not to the catalogue's optimism. Replace the sludge-trap plug's staking on the crank — a loose sludge trap destroys cranks.
5. **Gearbox and clutch.** The separate 4-speed box strips on the bench. Inspect dogs and slots for rounding, replace bearings and seals as a set, check clutch-plate flatness and basket notching.

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6. **Cycle parts.** Rebuild forks with new seals and correct oil; rebuild shocks or replace with correct-pattern units. Wheel rebuilds: new spokes and nipples, rims trued — chrome rims that are pitted will not take a lasting polish.
7. **Brakes.** Drum brakes front and rear: new shoes, arced to the drums; inspect drum surfaces for scoring and ovality; new cables throughout.
8. **Electrics.** New wiring harness (the original insulation is done), rebuilt or replaced switches, correct 6-volt battery, charging-system test under load. Verify magneto vs. battery-and-coil fitment for the year before ordering parts.
9. **Paint and plating.** Paint last among the major jobs, after all trial-fitting is done. With no verified 1960 palette in the sources checked, do not paint until the color is verified against the factory parts book or a period brochure.
10. **Final assembly and shakedown.** Torque to the factory manual's figures (see Section 13), set timing and carburation to the book, then run a disciplined shakedown: heat cycles, re-torque the head, re-check tappets, change the oil early.

13. Torque values and service data

Torque figures are **not printed here from memory**. Triumph revised fastener specifications across the run, and a wrong figure on a cylinder-head stud is how threads and castings get destroyed. Use the factory workshop manual for your exact model:

- **1945-1955 pre-unit twins:** Triumph factory Workshop Manual No. 11 (99-0836) — rigid, sprung-hub and swingarm models.
- **September 1956-August 1962 pre-unit twins:** Triumph factory Workshop Manual No. 17 (99-0837) — swingarm models only.
- **General procedures and second opinions:** Haynes 'Triumph Pre-Unit Twins 1947-1962'; TOMCC technical literature.

Fasteners that must be torqued to the book on every rebuild, without exception: cylinder-head nuts/studs (tighten in the book's sequence, in stages, on a cold engine — and re-torque after the first heat cycles), rocker-box bolts, crankcase bolts, engine-mounting plates, front and rear wheel spindles, fork pinch bolts, handlebar and triple-clamp bolts, rear-sprocket bolts, exhaust-pipe nuts (snug these progressively — overtightening cracks the head's exhaust spigots).

Service-data discipline matters as much as the figures: use new gaskets and seals throughout, replace every oil line and fuel line, set valve clearances and ignition timing to the factory manual before attempting to tune carburetion, and change the oil after the first 500 miles.

Sources

Factory and marque references consulted in authoring this guide. Specifications are taken from factory documentation and reputable marque references — never from crowd-sourced encyclopedias.

- Triumph factory Workshop Manual No. 11 (99-0836), 1945-1955 pre-unit 500/650/350 twins (rigid, sprung-hub and swingarm models)
- Triumph factory Workshop Manual No. 17 (99-0837), pre-unit 500/650 twins, September 1956-August 1962
- Factory replacement-parts catalogues 1946-1959: model coverage and engine-number breakpoints via the britcycle.com Triumph factory-literature contents list

https://britcycle.com/products/150/Contents_Triumph_6.pdf

- Classic Bike Shop free factory parts-book archive (Triumph Pre-Unit 350, 500 & 650 Twins Parts Books, 1949-1962)

https://www.classicbikeshop.co.uk/free-parts-books

- Haynes "Triumph Pre-Unit Twins 1947-1962" (model ranges; 498/649 cc pre-unit twin)

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