

Introduction to the Suzuki 500 range

The Suzuki Motor Company commenced making motor cycles in 1936. However, their machines were not imported to the UK until 1963. Backed by the success of their racing machinery, the 250 cc models quickly caught on and their impressive performance has maintained their popularity.

In November 1968 Suzuki introduced their first 500 cc machine, the T500 Cobra and showed they had overcome the design problems of building a high revving large capacity two-stroke engine. Once again, the performance obtainable from Suzuki's machine immediately took it into the production racing field and it was later developed for road racing - its only apparent drawback being its high fuel consumption which necessitated large fuel tanks for long distance events.

A year after its introduction, the Cobra was revamped and introduced to the UK as the T500 II. This machine, in turn, was discontinued in August 1970 and replaced in October 1970 by the T500 III Charger which possessed a luggage grid on the petrol tank and a few minor modifications. However, in January 1971 the T500 III became the T500R with the disappearance of the luggage grid and the inclusion of a restyled tank and new colour scheme, a tripmeter in the speedometer and a new lighting switch. January 1972 and another paint scheme plus a few minor modifications turned the 'R' to a 'T'; January 1973 brought the T500K and January 1974 the T500L which shows that Suzuki must be well pleased with their T500 series.

In general, the T500 series of motor cycles have been virtually unchanged since the initial revamping of the T500 Cobra. This shows that extensive development work must have been carried out by Suzuki before they introduced the tried and tested machine to the UK. From the maintenance viewpoint, the engine is relatively easy to work on, as are most two-strokes, and should present few problems to the home mechanic. Also,

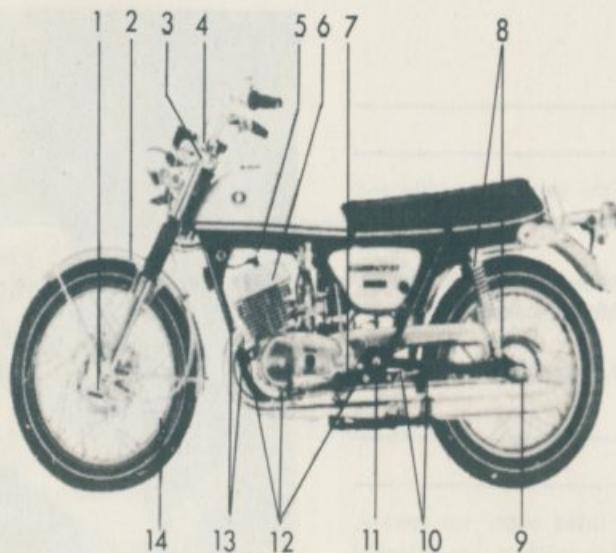
dealers have indicated that the motor is reliable and rarely requires a complete stripdown as long as regular maintenance has been carried out by the owner. In addition, riders comments must place it as one of the best motor cycles available today - a high performance, finely balanced, well designed machine.

Suzuki have shown that, with their 'Possi-force' (or 'CCI') lubrication system, they can produce reliable, large capacity two-stroke motor cycle engines and, unlike their other Japanese competitors, have remained faithful to the two-stroke for their two and three cylinder machines. Experience gained in the early 1960's under the exacting conditions of racing led to a World Championship; proof enough that Suzuki rank amongst the leaders in the design and manufacture of high performance two-stroke engines. The trend continues, as emphasised by Suzuki's recent victory in the British 'Formula 750' Championship and by the formation of the Suzuki Owners Club of Great Britain.

| Dimensions | T500 | GT500A |
|------------------|-------------------|-------------------|
| Overall length | 86.2 in (2190 mm) | 86.9 in (2206 mm) |
| Overall width | 34.3 in (870 mm) | 34.6 in (880 mm) |
| Overall height | 44.3 in (1125 mm) | 44.7 in (1135 mm) |
| Wheelbase | 57.3 in (1455 mm) | 57.7 in (1466 mm) |
| Ground clearance | 6.9 in (175 mm) | 6.3 in (160 mm) |
| Dry weight | 412 lb (187 kg) | 395 lb (179 kg) |

RM1. TORQUE SETTINGS

| No. | Part | Quantity | Tightening Torque |
|-----|---------------------------------|----------|-----------------------|
| 1 | Front axle nut | 1 | 650 kg cm (47 lb ft) |
| 2 | Fork inner tube fitting bolt | 2 | 200 kg cm (14 lb ft) |
| 3 | Steering stem head fitting bolt | 3 | 250 kg cm (18 lb ft) |
| 4 | Handlebar clamp bolt | 4 | 130 kg cm (9.5 lb ft) |
| 5 | Spark plug | 2 | 200 kg cm (14 lb ft) |
| 6 | Cylinder head nut and bolt | 16 | 350 kg cm, 200 kg cm |
| 7 | Kickstarter fitting bolt | 1 | 300 kg cm (21 lb ft) |
| 8 | Rear shock absorber nut | 4 | 250 kg cm (18 lb ft) |
| 9 | Rear axle nut | 1 | 650 kg cm (47 lb ft) |
| 10 | Muffler fitting bolt | 4 | 300 kg cm (21 lb ft) |
| 11 | Rear swinging arm pivot shaft | 1 | 650 kg cm (47 lb ft) |
| 12 | Engine mounting bolt | 3 | 600 kg cm (43 lb ft) |
| 13 | Exhaust pipe fitting bolt | 4 | 130 kg cm (9.5 lb ft) |
| 14 | Spoke nipple | 72 | |



RM1. Torque wrench settings: check regularly

Quick glance routine maintenance adjustments and capacities

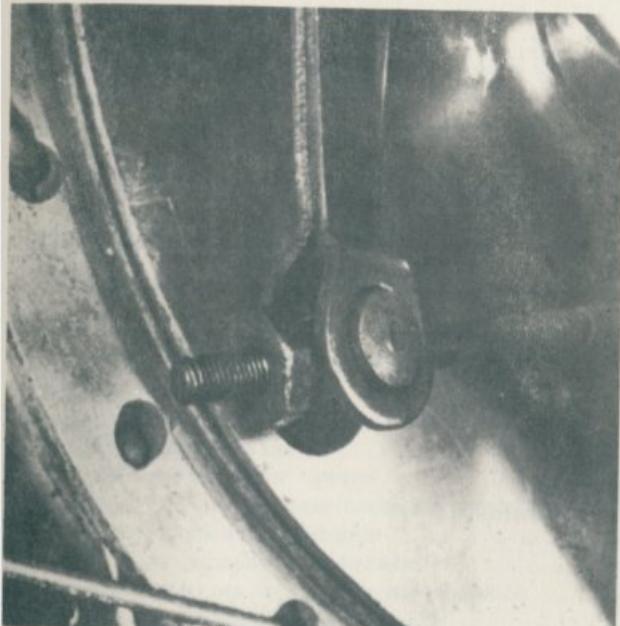
| | |
|------------------------|-----------------------------|
| Contact breaker gaps | 0.012 in - 0.016 in |
| Spark plug gaps | 0.020 in - 0.024 in |
| Spark plugs - standard | NGK B-77HC |
| Ignition timing | 24° BTDC 3.44 mm (0.134 in) |
| Fuel tank capacity | 3.1 Imp gallons * |
| Oil tank capacity | 3.16 pints * |

* See list of recommended lubricants for grades

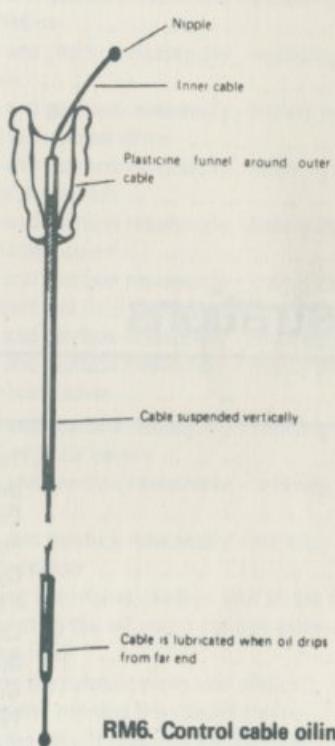
Tyre pressures

Solo
Duo

| Front | Rear |
|--------|--------|
| 23 psi | 27 psi |
| 23 psi | 33 psi |



RM5. Brakes are fitted with adjusters, as shown



RM6. Control cable oiling

Recommended lubricants

| | | |
|---|-----|---|
| ENGINE | ... | Castrol TT two-stroke oil (1.8 litres) 3.16 Imp. pints, 3.8- U.S. pints |
| Note: The oil is contained in a separate oil tank, which forms part of the "Posi-Force" lubrication system. | | |
| OIL SHOULD NOT be mixed with the petrol in the fuel tank. | | |
| GEARBOX | ... | Castrol GTX (1.4 litres) 2.5 Imp. pints |
| GREASE NIPPLES | ... | Castrol LM Grease |
| CONTROL CABLES | ... | Castrol Everyman oil |
| TELESCOPIC FORKS | ... | Castrolite (220 cc per leg) 0.39 Imp. pints 0.46 U.S. pints |
| CHAIN | ... | "Linklyfe" or "Chainguard" |

Specifications

| | |
|-------------------------------|--|
| Model | All T500 models and GT500A |
| Engine | Twin cylinder two stroke |
| Cylinder heads | Aluminium alloy |
| Cylinder barrels | Aluminium alloy |
| Bore | 70 mm (2.75 in) |
| Stroke | 64 mm (2.52 in) |
| Cubic capacity | 492 cc |
| Compression ratio (corrected) | 6.6 : 1 |
| Maximum bhp at 7000 rpm | 47 |
| Maximum torque at 6000 rpm | 37.5 lb ft 38.3 lb ft |
| Weight | 139 lb (63 kg) |
| Pistons | |
| Type | Aluminium with piston ring pegs |
| Oversizes available | + 0.5 mm (0.020 in), + 1.0 mm (0.040 in) |

Piston rings

| | |
|------------------|---------------------------|
| Number | Two per piston |
| Gap | 0.008 - 0.040 in |
| Groove clearance | Not greater than 0.006 in |
| Capacities | |
| Oil tank | 1.8 litres (3.2 pints) |
| Gearbox | 1.2 litres (2.2 pints) |

Gear ratios

| | |
|------------------------|------------------|
| Bottom gear | 2.500 : 1 |
| Second gear | 1.563 : 1 |
| Third gear | 1.158 : 1 |
| Fourth gear | 0.955 : 1 |
| Top gear | 0.870 : 1 |
| Primary drive | 2.50 : 1 |
| Final drive (standard) | 2.20 : 1 (33/15) |

Overall reduction in top gear
$$\frac{0.87}{1} \times \frac{2.50}{1} \times \frac{2.20}{1} = \frac{4.79}{1}$$

Clutch

| | |
|-----------------|-------------------|
| Friction plates | |
| Number | |
| Thickness | 7 |
| Standard | 3.5 mm (0.138 in) |
| Minimum | 3.2 mm (0.126 in) |
| Maximum warpage | 0.4 mm (0.016 in) |
| Steel plates | |
| Number | |
| Thickness | 7 |
| Standard | 2 mm (0.08 in) |
| Minimum | 1.85 mm (0.07 in) |
| Maximum warpage | 0.1 mm (0.004 in) |

Clutch springs

| | |
|-------------|-------------------|
| Free length | |
| Standard | 40.4 mm (1.58 in) |
| Minimum | 39.0 mm (1.53 in) |

Torque wrench settings

| | lb ft | kg cm |
|-----------------------------|-------|-------|
| Cylinder head nuts (long) | 25 | 350 |
| Cylinder head bolts (short) | 14.4 | 200 |
| Engine sprocket nut | 29 | 400 |
| Oil pump union bolt | 3.6 | 50 |
| Primary pinion | 36 | 500 |
| Crankcase bolts - 6 mm | 7 | 100 |
| Crankcase bolts - 8 mm | 14 | 200 |

Miscellaneous

| | |
|--|---------------------|
| Backlash in primary drive | |
| Standard | 0.025 - 0.065 mm |
| Maximum | 0.16 mm (0.006 in) |
| Maximum crankshaft run-out | 0.06 mm (0.0024 in) |
| Maximum sideways play at small end | 3 mm (0.118 in) |
| Gear selector fork - gearwheel clearance | |
| Standard | 0.4 - 0.6 mm |
| Maximum | 0.8 mm (0.03 in) |
| Clutch housing - axial play | |
| Standard | 0.05 - 0.20 mm |
| Maximum | 0.25 mm (0.01 in) |
| Maximum piston clearance | 0.15 mm (0.006 in) |

Specifications

Fuel tank capacity

| | |
|------------|--|
| All models | 3.1 Imp gallons (3.7 US gallons/14 litres) |
| | 3.7 Imp gallons (4.5 US gallons/17 litres) |

Oil tank capacity

| | |
|------------|---------------------------------------|
| All models | 3.16 pints (3.80 US pints/1.8 litres) |
|------------|---------------------------------------|

Carburettors

| | T500 | T500II | T500III | T500R | T500J | T500K | T500L | GT500A |
|------------------|--------|--------|---------|----------|-------|---------|---------|--------|
| Make | | | | Mikuni | | | | |
| Type | VM34SC | | | VM 32 SC | | | | |
| Main jet | 410 | | | 150 | | 97.5 | 97.5 | |
| Slow running jet | 25 | | | 30 | | | 30 | |
| Needle | 5DP2 | | | SEP8 | | 5FP17-3 | 5FP17-3 | |
| Throttle valve | | | | 2.5 | | | | 2.5 |

Chapter 3 Ignition System

Contents

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Specifications

Spark plugs

| | |
|----------|--|
| Make | NGK |
| Type | |
| Standard | B-77HC B-7HS (GT500A model) |
| Cold | B-8HC, B-8HS or B-9H |
| Hot | B-7H, B-7HC or B-7HS |
| Reach | ½ in (12.7 mm) |
| Thread | 14 mm |
| Gap | 0.020 - 0.024 in (0.5 - 0.6 mm) 0.024 - 0.028 in (0.06 - 0.7 mm) GT500A |

Plug equivalents

| Thread size | Heat Range | NGK | Nippon-denso | Champion | AC | Auto-Lite | Bosch | Lodge |
|----------------|------------|---------------|--------------|-----------|----------------|-----------|----------|----------|
| 14 mm | Hot | B-6HS | W17F | L87 | 44F 42F | AE3 | | |
| | X | | | L7, L7J | 44FF | | W225T1 | H14, HN |
| 12.7 mm (½ in) | | B-7HS | W22F | L5 | 42FF | AE2 | W240T1 | 2HN, 3HN |
| Reach | | B-77HC | W24F | L4J, L62R | | | | |
| X | | | | | MC41F M42FF | AE23 | W240P11S | |
| 20.6 HEX | Cold | B-8HS B-9H | W24F | L4J | | | W260T1 | HH14 |

Contact breakers

| | |
|-----------------|--|
| Gap | 0.012 in - 0.016 in (0.3 - 0.4 mm) CDI system, GT500A model |
| Ignition timing | 0.134 in (3.44 mm) BTDC both cylinders, measured by dial gauge 24° BTDC both cylinders, measured by degree disc |

Capacitor (condenser)

| | |
|------------|------------------|
| Rating | 0.22 - 0.28 pi F |
| Resistance | 10 + Meg ohm |

Specifications

Battery

| | |
|----------|---------------------|
| Type | Lead acid |
| Make | Yuasa MBR3-12D |
| | Furukawa FB 12N7-4A |
| | Furukawa BRT3-12G |
| Voltage | 12 volts |
| Capacity | 7 amp hr |

Alternator

| | |
|-----------|--|
| Output | 1.5 - 2.5 amps at 8000 rpm (daytime running - light electrical load) |
| | 2 - 3 amps at 8000 rpm (night running - heavy electrical load) |
| Cut out | 1500 rpm (day and night) |
| Main fuse | 15 amp |

Bulbs

| | |
|------------------------------|--------------------------|
| Main headlamp | 35/25W Pre-focus |
| Parking lamp | 3.4W bayonet fitting |
| Tail/stop lamp | 7/23W offset pins |
| Speedometer lamp | 3.4W bayonet fitting |
| Tachometer lamp | 3.4W bayonet fitting |
| Neutral indicator lamp | 3.4W bayonet fitting |
| Headlamp beam indicator lamp | 3.4W bayonet fitting |
| Flashing indicators lamp | 1.7W bayonet fitting |
| Flashing indicator lamps | 23W each bayonet fitting |

All bulbs 12 volt rating