Owner's Handbook BMW 1800 TI Special Version I

for use in conjunction with
Owner's Handbook BMW 1800 TI

BAYERISCHE MOTOREN WERKE AG

This booklet contains details of all the principal points in which the BMW 1800 TI Special Version I differs from the standard BMW 1800 TI. It is a supplement to the Owner's Handbook BMW 1800 TI, and is intended for use in conjunction with this.

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Dear BMW Owner

In line with our tradition of building motor-cars with outstanding performance and characteristics, we have now developed the BMW 1800 TI Special Version I.

In selecting this model, you have demonstrated that – for you – a motor-car is far more than a utilitarian "means of transportation". You are now well equipped to enjoy all the pleasures of driving and for any motorsport competition held under fair conditions.

In conclusion, we wish you unlimited luck and success!

Yours very truly,

BAYERISCHE MOTOREN WERKE AG

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The **gearshift control layout** is indicated in the diagram below, first gear and reverse gear are located in the same plane; when moving the gearshift lever to the left, it is necessary to overcome a slight spring resistance. All the forward gears have baulk sychromesh.

Fig. 1

The figure indicated by the **revolution counter** multiplied by 1000 indicates the actual engine speed of your car. The maximum permissible engine speed which may be maintained for some time is 6500 rpm. It is permissible to reach 7000 rpm for a few seconds, e. g. when overtaking. The second pointer of this instrument can be set with a screwdriver at any desired reading. During the first 625 miles (1000 km), the engine speed of 4500 rpm must not be exceeded. The carburetors are provided with a throttle restrictor, applied by the factory, for a maximum engine speed of 5000 rpm. **Caution!** This throttle restricting lead seal must be removed, but not before the first 2000 miles (3000 km) have been covered.

Fig. 2

Your motor-car has **bucket seats** at the front; the position of their backs is adjustable to any desired angle, by turning the knob backwards or forwards. The seat cushions are readily removable.

Fig. 3

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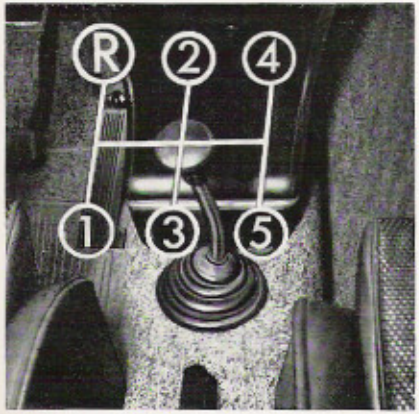

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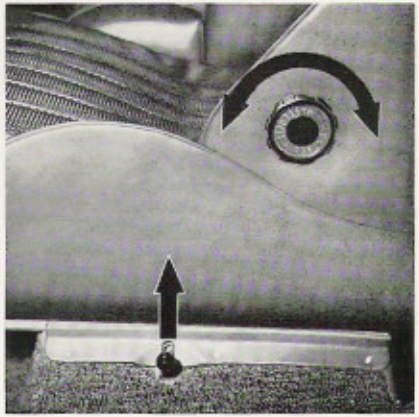

An additional **fuel filter** with water separator is mounted on the dash bulkhead, in the engine compartment; it can be cleaned after unscrewing the brass retaining ring. **Fig. 4**

There are three lubricating points on the **two-piece propeller shaft,** which should be lubricated regularly according to the Maintenance Schedule. **Fig. 5 and 6**

Engine oil change intervals:
every 2000 miles (3000 km)

Total replenishment quantity:
7 Imp. pints (4 litres) + ½ Imp. pint (0,25 litres) when oil filter is changed.

Oil specification: SAE 30 branded HD oils for petrol (gasoline) burning internal combustion engines, applicable at ambient temperatures above zero degrees Centigrade; SAE 10 W 30 at ambient temperatures below 0° C (for racing purposes, see page 7).

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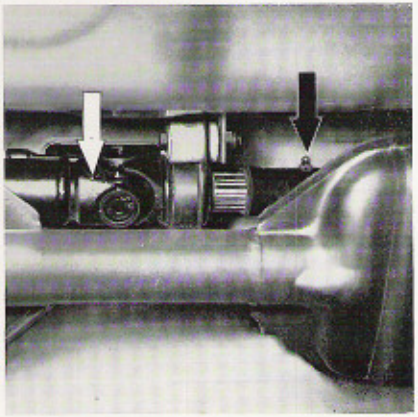

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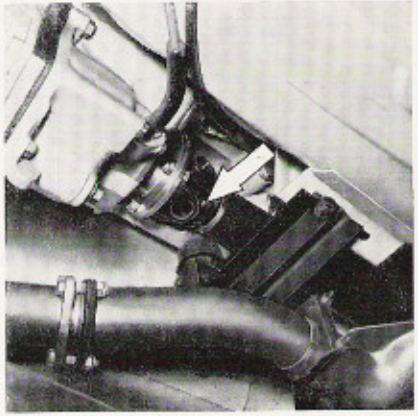


When entering the BMW 1800 TI Special Version I for competitions, the following modifications to the engine, as compared to the standard condition, should be carried out:

1. **Valve clearance:**
   inlet 0.20 mm
   exhaust 0,25 mm

   These settings must be adjusted with the engine in a cold condition.
   Before and after any competition, but every 2000 miles (3000 km) as a minimum, both the valve clearance and the **timing adjustment** (TDC) should be checked.

2. **Engine oil:** For racing purposes, use only castor racing oil in place of the HD oil. Note that HD oil must not be mixed with the castor racing oil.

   Caution: Thoroughly flush out the engine with the new oil which is to be used. For rally purposes, use ordinary HD oil.

3. A **special exhaust system** is recommended for racing, but use of this is only permitted on enclosed race tracks. This exhaust system is not obtainable from the factory. Drawings can be supplied by the BMW Service Department on request, for the purpose of making such exhaust components.

   For rallies, the standard exhaust system should be used.

4. If the car is driven without an **intake air filter,** a modification to the carburettor setting is necessary, involving the use of an HD 145 main jet in place of the standard HD 125, but this is only permissible in conjunction with use of the special exhaust system.

   For rallies, the car must be driven with its intake air filter installed.

Our **liability and responsibility** within the scope of the warranty become void if the car is entered in competitions.

Special equipment

Apart from the standard components, the following items are also available:

Fuel tank with 23.2 Imp. galls (105 litres) capacity
Electric fuel pump

Adjustable shock absorbers, front and rear

Rear axle differential complete, with ratios:

4.22 : 1 (number of teeth 38 : 9)
4.75 : 1 (number of teeth 38 : 8)
5.86 : 1 (number of teeth 41 : 7)

Rear axle differential complete, with differential lock and ratios:

4.11 : 1 (number of teeth 37 : 9)
4.22 : 1 (number of teeth 38 : 9)
4.75 : 1 (number of teeth 38 : 8)
5.86 : 1 (number of teeth 41 : 7)

Conversion kit for lowering the car

Tropical radiator fan

Rear window with heater

Horizontal double carburettor, model Weber 45 DCOE.

View from above. **Figure 7**

1 = Idling mixture regulating screw

2 = Starter lever

3 = Starter jet

4 = Starter valve

5 = Pump operating rod

6 = Test screw for transfer bores

7 = Plug screw (pump jet)

8 = Throttle valve shaft

9 = Plug screw (pump pressure valve)

10 = Pump suction valve

11 = Emulsion tube carrier with air correction jet, emulsion tube and main jet

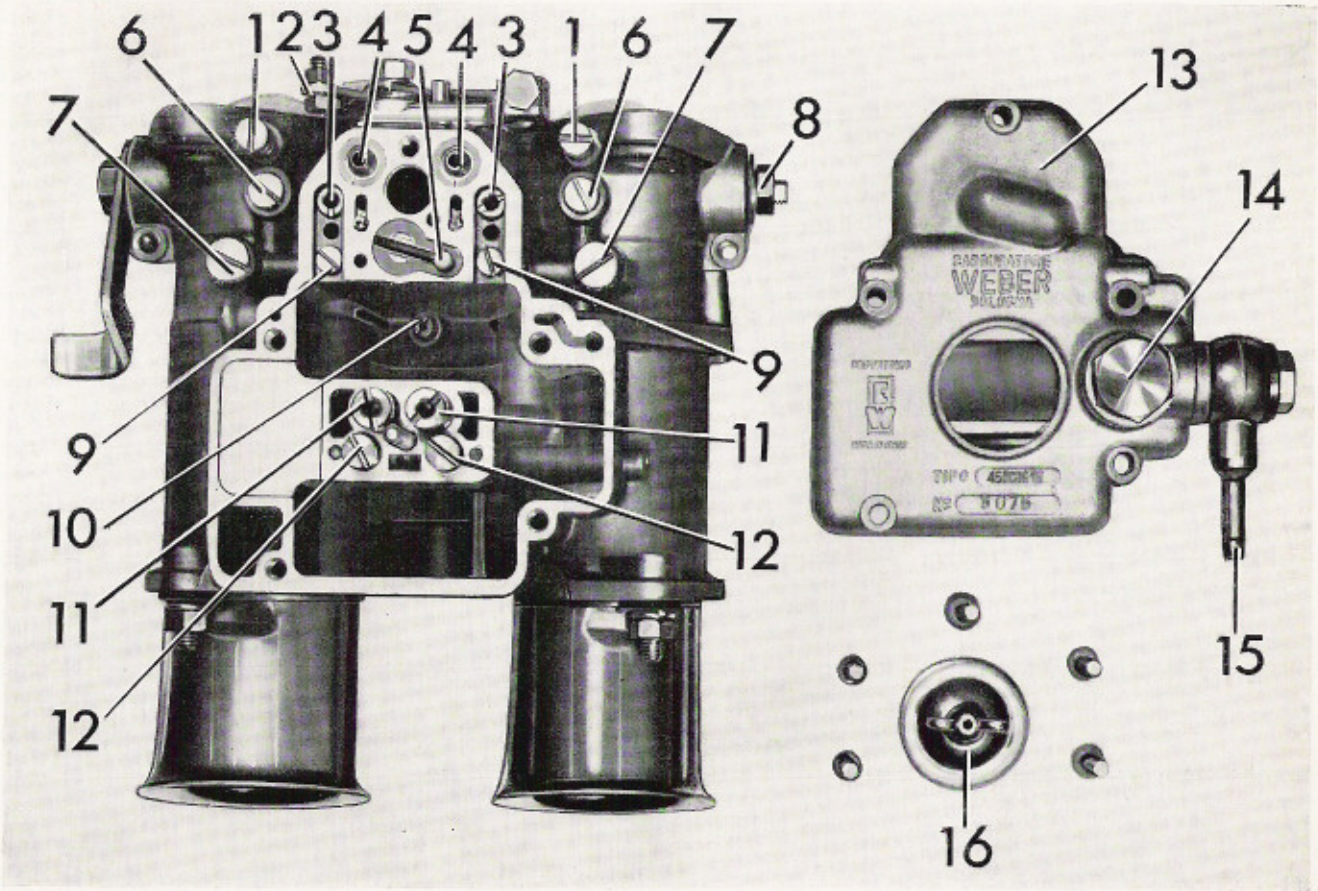
12 = Idling jet carrier with idling jet

13 = Carburettor cover

14 = Plug screw (fuel filter)

15 = Fuel inlet

16 = Jet cover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WEBER

Technical Data

Engine

Cylinder capacity	
according to tax formula	1761 ccm
effective	1773 ccm
Maximum effective output	130 HP (146 SAE)
at engine speed	6100 to 6300 r.p.m.
Maximum permissible continuous engine speed	6500 r.p.m.
Piston speed	16.3 m/s
at engine speed	6100 r.p.m.
Maximum torque	115.7 ft.lbs. (16 mkg)
at engine speed	5100–5400 r.p.m.
Compression ratio	10.5 : 1
Stroke/bore	3.1–3.3" (80/84 mm) (= 0.95)
Specific engine output	73.3 HP/litre
Torque weight (empty)	111.4 ft.lbs. (15.4 mkg/1000 kg)
Power: weight ratio	
Vehicle ready to drive, with full tank	17.6 lbs./HP (8 kg/PS)
Vehicle fully loaded, with luggage	24.42 lbs./HP (11.1 kg/PS)

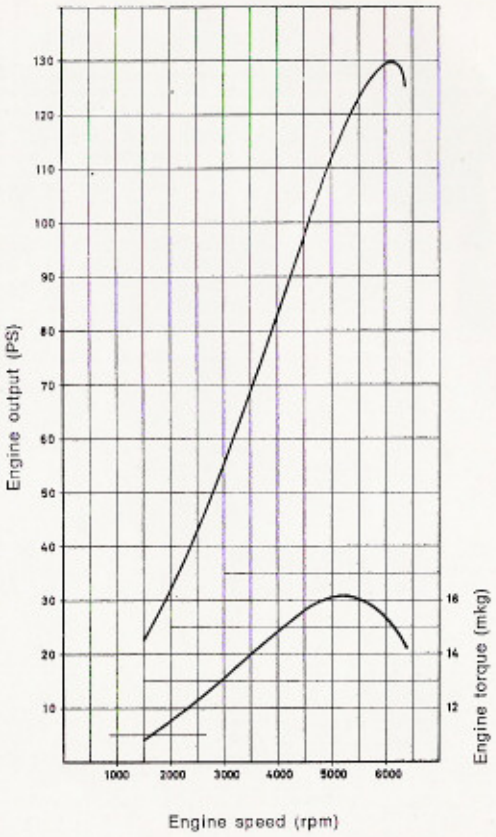
Working valve clearance (see page 7)

Intake: .008" (0.20 mm)

Exhaust: .008" (0.20 mm)

as measured between valve stem and rocker arm, with **cold** engine.

Engine performance



Reference timing

Intake opens	24° btdc
Intake closes	64° abdc
Exhaust opens	64° bbdc
Exhaust closes	24° atdc

at .02" (0.5 mm) setting clearance, measured between rocker arm and basic cam radius.

Engine oil consumption

up to .35 Imp. pints (0.2 litres) per 62 miles (100 km) (approx.)

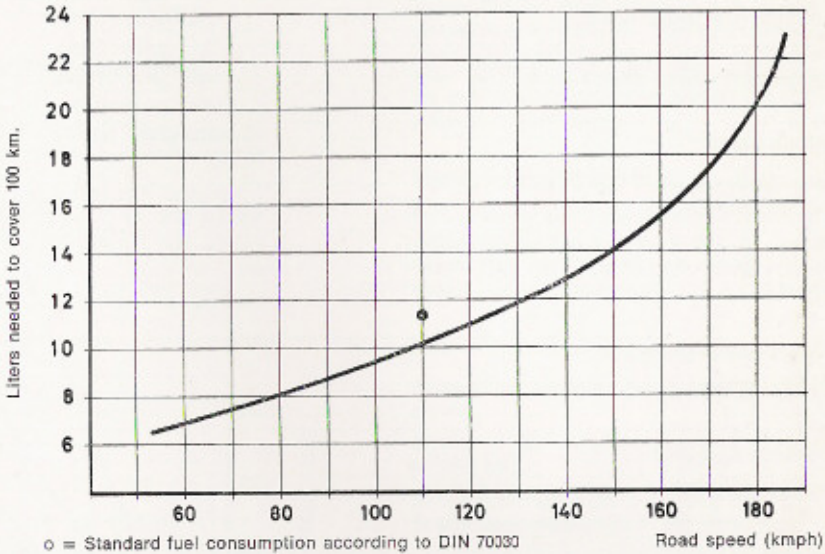
Standard fuel consumption according to DIN 70030

24.5 m.p.Imp. gall. or 20.5 m.p. US gall. (11.4 litre/100 km)

Setting of the two double-horizontal carburettors

Carburettor type:	Weber 45 DCOE
Venturi tube	38
Atomising tube	5
Main jet	125
Air correction jet	170
Idling jet	45 F 8
Emulsion tube	F 9
Starter jet	140
Starter air jet	3 mm dia. and 2×2.5 mm dia.
Pump jet	40 high
Pump suction valve	70
Float weight	26 gram
Float needle valve	2.25

Fuel consumption at steady speed



o = Standard fuel consumption according to DIN 70030

Float level	7.5 mm from joint surface, with ball extended
Bypass bores	2×1.2 mm dia.
Idling	independent of main jet system
Pump spring	0.5 mm dia. thick, 138 gr.
Pump lever	14 mm stroke

Electrical Equipment

Ignition coil Bosch K 6 V

Distributor Bosch IFUR 4 (R)

Spark plugs

Standard: Bosch W 235 P 21, for normal and rally driving.

Bosch W 250 P 21, for racing competitions: Electrode gap 0.014 in. (0.35 mm) each

Three-phase generator

Bosch K 1 (R) 7 V 50 A or S. E.V. A 6/50

Voltage regulator

Bosch ADN 1/7 V or S. E.V. E 7, 2/30

Starter

Bosch GF (R) 0.6 HP 6 V

Rev counter illumination

1 × 1.2 Watt, indicator lamp (1)

Gearbox

5-speed with Porsche baulk synchromesh on all forward gears, one reverse gear.

Ratios:

1st gear : 3.33
2nd gear : 2.15
3rd gear : 1.565
4th gear : 1.225
5th gear : 1
Reverse : 3.542

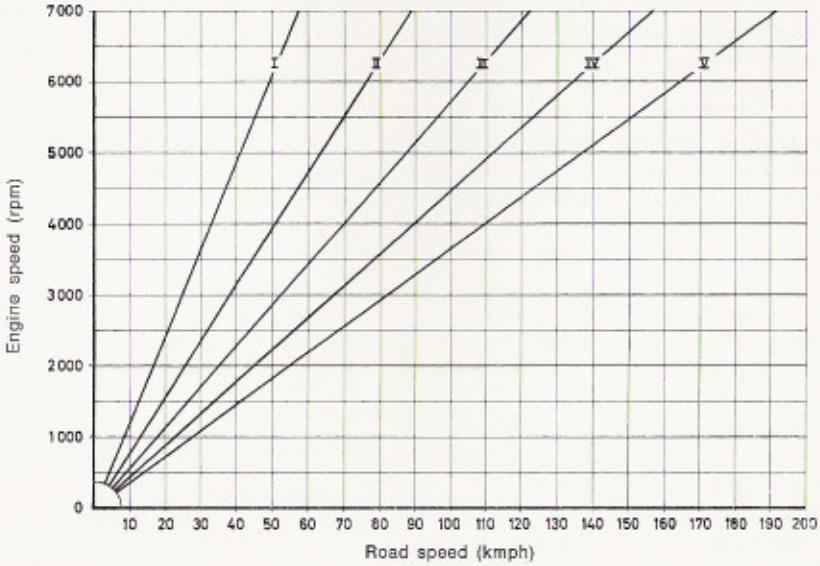
Gearbox oil filling

SAE 80 branded gear oil (if not available SAE 30 engine oil), 1.85 imp. pints (1.05 litres)

Propeller shaft to rear differential

Divided prop shaft with intermediate bearing

Engine speed — road speed



Rear wheel suspension

Rubber mounted, with extra torsion-bar stabilizer

Steering

Ratio 12.8 : 1
Overall ratio 14.51 : 1

Wheels and tyres
Steel disc wheels

Drop-base rim 5 JK × 14

Tyres

"Belted-Type" Dunlop 165 HR 14, tread CB 57, with inner tube (standard)

"Belted-type" Dunlop 175 HR 14, tread CB 57, with inner tube (optional extra)

Tyre pressures, based on cold tyres (if the tyres are warm, increase these figures by 4.26 p.s.i or 0.3 atm.)

For "belted" (radial) 165 HR 14 and 175 HR 14 tyres:

Load up to 4 persons

front 25.6 p.s.i., 1,8 atm. gauge
rear 25.6 p.s.i., 1,8 atm. gauge

Load 5 persons and luggage
front 27 p.s.i., 1.9 atm. gauge
rear 28.45 p.s.i., 2 atm. gauge

For competition driving (depending on the track), front and rear: 28.45—35.56 p.s.i. (2—2.5 atm. gauge)

For **winter and ice tyres:**

Load up to 4 persons
front 27 p.s.i., 1.9 atm. gauge
rear 27 p.s.i., 1.9 atm. gauge

Load 5 persons and luggage
front 27 p.s.i., 1.9 atm. gauge
rear 30 p.s.i., 2.1 atm. gauge

Foot brake

Hydraulic 4-wheel brakes with servo-assistance ATE 51/301. Master brake cylinder located in the engine compartment, cylinder dia. 7/8" (22.2 mm), transparent replenishment reservoir also in engine compartment.

Front

ATE caliper disc brakes with automatic adjustment.

Brake disc diameter 10.71 in. (272 mm)
Brake cylinder diameter 2.126 in. (54 mm)

Rear

Expanding brakes with Simplex friction shoes.

Wheel brake cylinder diameter 11/16" (17.46 mm)

Brake drum diameter 9.9" (250 mm)
Brake shoe width 1.575" (40 mm)

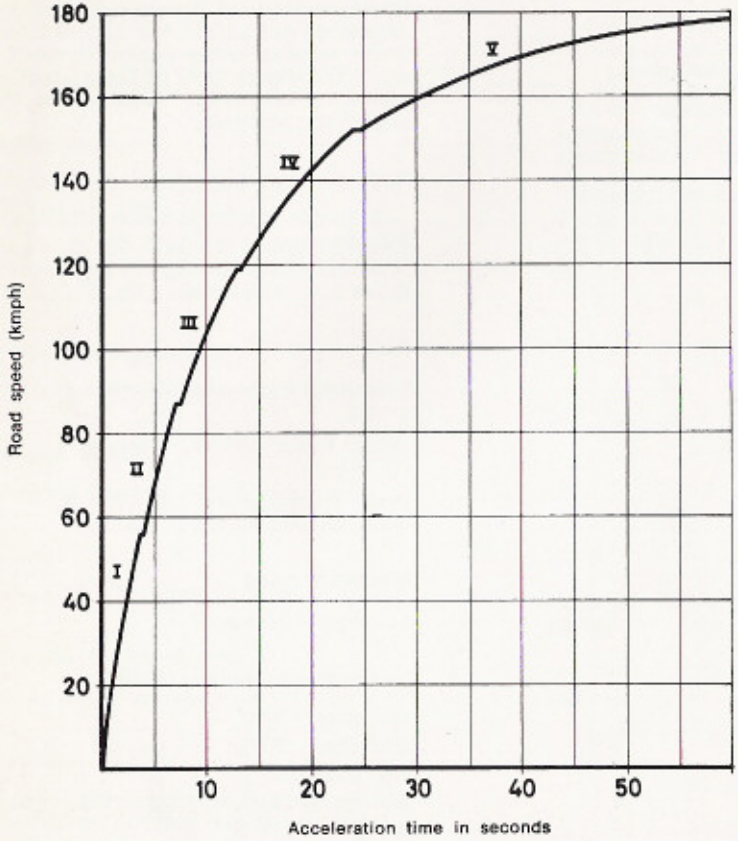
Maximum speed

112 m.p.h. (180 kmph)

Maximum hill-climbing ability

1st	gear	57 %
2nd	gear	32 %
3rd	gear	21 %
4th	gear	14 %
5th	gear	10 %

Accelerating through the gears



Acceleration

Gear	km. p. h.	MPH	sec.
1st	0– 50	0– 31	3.1
2nd	0– 80	0– 50	6.1
3rd	0–100	0– 62	9.2
3rd	0–120	0– 75	13.4
4th	0–140	0– 87	19.0
5th	0–160	0–100	30.5

Distance from standing start	Time	Average speed attained		End speed thereby	
metres	sec.	kmph	MPH	km/h	MPH
1000	30.7	117	72,5	160	100

Tyres 165 HR 14
Rear differential ratio 4.11 : 1

In the interests of further development we reserve the right to make changes in the design, equipment and accessories. Dimensions, weights and performance data are to be understood as being within appropriate tolerances. Errors and omissions excepted.