

TECHNICAL DATA R 20 (1937-38)

(SOURCE OF INFORMATION - B.M.W.)

356

ENGINE

BORE & STROKE 60 x 68 mm
C.C.M. 192
COMP. RATIO. 6:1
MAX. R.P.M. 5400
H.P. (DIN) 8 @ 5000 RPM
ENGINE OIL CAPACITY 1.5 LITRES SUMMER SAE 40 WINTER SAE 20

CARB

FISCHER AMAL M 74/428
MAIN SET 65
SLIDE 4/4
NEEDLE 2.67 - 2ND GROOVE FROM TOP
AIR SCREW OPEN 2-2½ TURNS

GEARBOX (As R 23)

RATIOS 1ST ~~2.55~~:1
2ND 2.58:1
3RD 1.84:1
~~4TH 1.55:1~~

OIL CAPACITY 0.4 LITRES SUMMER SAE 40 WINTER SAE 20

REAR DRIVE (As R 23)

RATIO 4.18:1 GIVES 6.86:1 TOP GEAR

CROWN WHEEL 46 TEETH

PINION 11 TEETH

OIL CAPACITY 0.3 LITRES SUMMER SAE 40 WINTER SAE 20

BRAKES

DRUM DIAMETER FRONT 160 mm
REAR 180 mm

LINING DIMENSIONS FRONT 170 mm x 20 mm x 4 mm
REAR 200 mm x 20 mm x 4 mm

WHEELS

TYRES FRONT 300 x 19 PRESSURE 1.4 ATMOS.
(RIM 2.5 x 19)
REAR 300 x 19 PRESSURE 1.3 ATMOS.
(RIM 2.5 x 19)

SUSPENSION

FRONT 2 x 0.16 LITRES OIL

ELECTRICAL

FILK

DYNAMO BOSCH A 50/6/1800 R1, 50 WATT

IGNITION BATTERY & COIL

BATTERY BOSCH 6 B 7 DIN 72311 7 AMP. HR.

PLUG. BOSCH W 175 T1 OR BERU K 175 b 1/14

PLUG GAP 0.6 mm

CONTACT BREAKER GAP 0.4 mm

MAIN DIMENSIONS

WHEEL BASE 1330 mm
 GROUND CLEAR. 100 mm
 LENGTH 2000 mm
 WIDTH 800 mm
 HEIGHT 920 mm

WEIGHT

UNLADEN DRY 130 kg
~~KERO SIDE WEIGHT~~
~~MAX. LADEN~~ 200 kg?
 MAX. LADEN 330 kg

PERFORMANCE

CONTINUOUS 70 km/hr. - AND ANOTHER GIVES 90 km/hr.
 MAX. 95 km/hr. - ANOTHER SOURCE GIVES 83 km/hr.
 FUEL CAPACITY 9.6 LITRES ^{TOTAL WITH 1 LITRE RES.} AND OTHER SOURCE GIVES 10 LITRES
 TOTAL WITH 2 LITRES APPROX RESERVE
 FUEL CONSUMPTION 2.8 LITRES/100 km ~~at~~ @ 60 km/hr.
 OIL CONSUMPTION 0.1 LITRES/100 km.
 H.P. (DIN)/LITRE 40.

SINGLE REPAIR DATAPISTONS

CLEARANCE 0.05 - 0.06 mm
 GROOVE CLEARANCES TOP 0.03 - 0.05 mm
 MIDDLE 0.02 - 0.04 mm
 BOTTOM 0.02 - 0.04 mm
 RING GAP 0.2 - 0.35 COMP. RINGS?
 0.25 - 0.4 SCRAPER RINGS?

~~VALVES~~ ROCKERS

BORE IN CYLINDER HEAD 15 mm - 0.06 mm
 BUSH OUTER DIAM. 15 mm ± 0.035 mm
 INTERFERENCE 0.03 - 0.06 mm
 BEARING RUNNING CLEARANCE 0.03 - 0.05 mm
 BEARING SIDE CLEARANCE 0.03 - 0.05 mm

VALVES

DIAMETRAL CLEARANCE 0.03 - 0.06 mm
 SEAT OUTER DIAMETER 31 mm
 TAPPET CLEARANCE COLD INLET 0.1 mm
 EXHAUST 0.1 mm
 VALVE SPRING FREE LENGTH OUTER 32 mm
 INNER 27 mm

CRANKSHAFT

MAX JOURNAL OVALITY 0.03 mm
 OVALITY OF COLLECTOR? OIL FLINGER? 0.08 mm
 END FLOAT 0.1 - 0.12 mm

BIG END

DIAMETRAL CLEARANCE NONE
 SIDE CLEARANCE 0.05 - 0.10 mm
 ROLLER CAGE SIDE CLEARANCE 0.1 - 0.15 mm

SMALL END

GUIDEON PIN DIAMETRAL CLEARANCE 0.01 - 0.03 mm

R 20 CONT

MAIN BEARINGS REAR BEARING RUNS DIRECT IN HOUSING

HOUSING DIAMETER FRONT $35\text{mm} - 0.017$
 $- 0.042\text{mm}$
BEARING DIAMETER ~~REAR~~ ^{FRONT} $35\text{mm} \pm 0.018\text{mm}$
INTERFERENCE $0.01 - 0.03\text{mm}$
RUNNING CLEARANCE $0 - 0.04\text{mm}$

CAMSHAFT

BORE DIAMETER IN HOUSING OR COVER FRONT $41\text{mm} \pm 0.025\text{mm}$
REAR $24\text{mm} \pm 0.022\text{mm}$
BEARING OUTER DIAMETER FRONT $41\text{mm} \pm 0.070$
 $\pm 0.095\text{mm}$
REAR $24\text{mm} \pm 0.09$
 $\pm 0.12\text{mm}$
INTERFERENCE FRONT $0.04 - 0.09\text{mm}$ REAR $0.07 - 0.12\text{mm}$
RUNNING CLEARANCE $0.03 - 0.08\text{mm}$
SIDE CLEARANCE $0.05 - 0.10\text{mm}$
TAPPET DIAMETRAL CLEARANCE $0.04 - 0.07\text{mm}$

TIMING

WITH 2mm TAPPET CLEARANCE

INLET OPENS 11° AFTER TDC ANOTHER SOURCE GIVES WITH 0.05mm TAPPET CLEAR.
 20° OR 2.5mm
CLOSES 29° AFTER BDC 60° OR 13.5mm
EXHAUST OPENS 29° BEFORE BDC 60° OR 13.5mm
CLOSES 11° BEFORE TDC 20° OR 2.5mm
IGNITION 10mm BEFORE TDC ANOTHER SOURCE GIVES 9.5mm
OR 40° " "

LUBRICATION

OIL PUMP SIDE CLEARANCE $0.05 - 0.1\text{mm}$
TEST PRESSURE @ 250RPM $1.5 - 2\text{ATMOS}$

GEARBOX REPAIR DATA

DRIVE SHAFT SIDE CLEARANCE $0.1 - 0.5\text{mm}$
MAINSHAFT SIDE CLEARANCE $0.1 - 0.5\text{mm}$
LATSHAFT SIDE CLEARANCE $0.1 - 0.5\text{mm}$
SHAFT END FLOATS MAXIMUM 0.1mm .
GEARS 1ST RUNNING CLEARANCE $0.03 - 0.1\text{mm}$
SIDE CLEARANCE $0.3 - 0.5\text{mm}$
2ND RUNNING CLEARANCE $0.03 - 0.1\text{mm}$
SIDE CLEARANCE $0.1 - 0.3\text{mm}$
3RD RUNNING CLEARANCE $0.03 - 0.1\text{mm}$
SIDE CLEARANCE $0.3 - 0.5\text{mm}$

KICK STARTER SHAFT

RUNNING CLEARANCE $0.02 - 0.07\text{mm}$
SIDE CLEARANCE TAKEN UP BY RETURN SPRING -
SEGMENT RUNS IN COVER
KICK STARTER IDLER WHEEL
RUNNING CLEARANCE $0.03 - 0.1\text{mm}$
SIDE CLEARANCE TAKEN UP BY SPRING.
SELECTOR FORK RUNNING CLEARANCE $0.05 - 0.12\text{mm}$

SUSPENSION REPAIR DATAFRONT FORK

STEERING HEAD BEARINGS 24 OFF 5.5mm DIA

BUSH RUNNING CLEARANCE 0.04-0.1mm

SPRING WIRE DIAMETER 4.25mm

~~FRONT CLEARANCE OF PROP SHAFT 1-3mm~~REAR WHEEL DRIVE REPAIR DATA

CROWN WHEEL FLOAT UPWARDS 0.1mm MAX.

SIDEWAYS 0.05mm MAX.

TOOTH BACK LASH 0.1-0.3mm

PROP SHAFT (GN) FLOAT 0.5mm

PROP SHAFT AXIAL CLEARANCE 1-3mm

PRESSURE FITTING FLANGE CARRIER OR SHOCK ABSORBER

TO PROP SHAFT 1500 kg MIN.

OTHER USEFUL INFORMATION

BSA DI BANTAM SILENCER LOOKS OK

BSA BANTAM BATTERY IS OF CORRECT DIMENSIONS

NSU CAR HEADLAMP RIM & REFLECTOR SUITABLE?

1964 VW VAN CONTACT BREAKER POINTS SUITABLE?

1964 VW VAN CONDENSER SUITABLE?

ADDITIONAL TECHNICAL DATA

AVERAGE PISTON PRESSURE 7.4 ATMOS

TIMING CHAIN 42 PITCHES $3/8" \times 7/32"$

FLYWHEEL DIA. 180 mm

MAIN BEARINGS 1 PLAIN 1 BALL RACE

SMALL END BEARING - ROLLER?

PISTON TYPE - FLAT TOP

MAX. OVER SIZE 61.5 mm

2 COMPRESSION RINGS A 60 x 2.5 mm acc DIN 73 102

1 OIL SCRAPER RING A 60 x 4 mm acc DIN 73 104

OIL PUMP - GEAR TYPE

OIL FILTER - WIRE MESH

AIR FILTER - OIL SOAKED

FUEL FILTER - GAUZE IN PETROL TANK

ALTERNATIVE CARB. BING AJ 1/20

MAIN JET 85

SLIDE? 3

IDLE JET 40

NEEDLE POSITION 2ND GROOVE FROM TOP

AIR SCREW OPEN $1\frac{1}{2}$ TURNS APPROX.

SADDLE SPRING WIRE DIA. 5 mm

STEERING GEOMETRY

CAMBER (TRAIL) 62 mm

HEAD ANGLE 61°

SADDLE HEIGHT 700 mm

WEIGHT ON FRONT WHEEL 60 kg

WEIGHT ON REAR WHEEL 70 kg } UNLADEN