MZ - MZ_ES_175_250_300_1965_Manual_de_reparatie

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Preface
To give lengthy explanations about MZ motorcycles, we consider superfluous. In the far north of Finland, under the scorching sun of Africa, under the most contrasting operating conditions, the MZs roll to the satisfaction of their owners!

So that the vehicles remain operational and reliable even after prolonged use and the associated wear and tear, we provide the necessary information for our MZ workshops at home and abroad with this repair manual.

Repair is a matter of trust in several respects:
Reliable work by the mechanic, on which the safety of the driver depends.
Recognition of the actual error, thereby no unnecessary use of materials and less labor.
Resulting from this: no rework, short downtimes and lower repair costs!

In order to make this possible, we do not describe purely locksmith work (we take craftsmanship skills for granted), but above all the identifying features of various damages and their causes.

A prerequisite for professional repair is to always work with the special tools and aids recommended by MZ. These can be obtained from the MZ spare parts sales department. With the help of the sketches in the appendix, it is possible to build them yourself. We would like to emphatically point out this recommendation especially to self-service workshops and hobbyists, so that no significant additional effort is incurred in terms of working time and material due to false optimism.

We hope to impart the necessary knowledge to the employees of our contract workshops at home and abroad as well as to our MZ friends all over the world with this reference work and wish you every success.
VEB MOTORRADWERK ZSCHOPAU
Customer Service Department

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Figure 1. ES 175/1 and ES 250/1
Figure 2. ES 300

1. Technical Data
1.1. Engine

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ESN 175/1 ESN 250/1 ESN 300
Operating principle Two-stroke (loop scavenging) Two-stroke (loop scavenging) Two-stroke (loop scavenging)
Cooling type Air (wind) Air (wind) Air (wind)
Number of cylinders 1 1 1
Stroke / Bore (in mm) 65 / 58 65 / 70 72 / 72
Displacement 172 cm3 250 cm3 293 cm3
Compression ratio 9:1 8.5:1 8.8:1
Compression chamber with screwed-in spark plug 21.4 cm3 33 cm3 38 cm3
Power at 5200 rpm 8.82 kW = 12 DIN hp or 13.5 SAE hp 11.76 kW = 16 DIN hp or 17.5 SAE hp 13.60 kW = 18.5 DIN hp or 20.2 SAE hp
Max. Torque at 4000 rpm 1.7 kpm 2.3 kpm 2.7 kpm
Lubrication Mixture lubrication 33:1, Special two-stroke engine oil Mixture lubrication 33:1, Special two-stroke engine oil Mixture lubrication 33:1, Special two-stroke engine oil Repair Manual of the MZ Motorcycle ES 175/1, ES 250/1 and ES 300 http://www.mzVb.de/miraculis/aw/mz/text/es30r/es30r .html
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Connecting rod bearing Caged needle bearing Caged needle bearing Caged needle bearing
Crankshaft main bearings 2 pieces bearing 6305 CN003 1 piece bearing 6302 CN003 2 pieces bearing 6305 CN003 1 piece bearing 6302 CN003 2 pieces bearing 6305 CN003 1 piece bearing 6302 CN003
Lubrication of the crankshaft main bearings Through transmission lubricant Through transmission lubricant Through transmission lubricant
Piston With 2 rings 2 mm wide With 2 rings 2 mm wide With 2 rings 2 mm wide
Piston mass complete with rings, bolts and circlips 240 ± 5g 360 ± 5g 400 ± 5g
Cylinder Light alloy, with cast-in liner made of special gray cast iron Light alloy, with cast-in liner made of special gray cast iron Light alloy, with cast-in liner made of special gray cast iron

1.2. Carburetor

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ESN 175/1 ESN 250/1 ESN 300
Type BVFN 25.5 KNN 1V2 (Double-lever round slide with needle guide) BVFN 28.5 KNN 1V1 (Double-lever round slide with needle guide) BVFN 30 KNN 1V1 (Double-lever round slide with needle guide)
Carburetor values: Passage in mm 25.5 28.5 30
Main jet 100 120 120
Needle jet 70 77 77
Part-load needle No. 3 with 7 notches 11 with 7 notches 11 with 7 notches
Needle position from above 5th notch 5th notch (4th after break-in period) 6th notch (5th after break-in period)
Idle jet 45 45 45
Slide cutout 4.0 mm 4.0 mm 4.0 mm
Idle air screw approx. 2.5 turns open approx. 2.5 turns open approx. 2.5 turns open
Fuel level 28 + 1 mm 28 + 1 mm 28 + 1 mm
Air filter Wet air filter with intake noise damper Wet air filter with intake noise damper Wet air filter with intake noise damper

1.3. Electrical System

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ESN 175/1 ESN 250/1 ESN 300
Ignition Battery ignition Battery ignition Battery ignition
Ignition timing 4 mm before TDC with fully extended centrifugal weights Contact gap 0.4 mm 3.3 mm before TDC with fully extended centrifugal weights Contact gap 0.3 mm 3 mm before TDC with fully extended centrifugal weights Contact gap 0.3 mm
Spark plug Isolator M 14/260 Isolator M 14/260 Isolator M 14/260 Repair Manual of the MZ Motorcycle ES 175/1, ES 250/1 and ES 300 http://www.mzVb.de/miraculis/aw/mz/text/es30r/es30r .html
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Electrode gap 0.6 mm 0.6 mm 0.6 mm
Alternator DC, 6 V, 60 W, Short term 90 W DC, 6 V, 60 W, Short term 90 W DC, 6 V, 60 W, Short term 90 W
Charging control lamp In the speedometer (red) In the speedometer (red) In the speedometer (red)
Regulator RSC 60/6, under the side panel RSC 60/6, under the side panel RSC 60/6, under the side panel
Battery 6 V, 12 Ah (lead-acid flat battery) 6 V, 12 Ah (lead-acid flat battery) 6 V, 12 Ah (lead-acid flat battery)
Ignition coil 6 V, under the fuel tank 6 V, under the fuel tank 6 V, under the fuel tank
Headlight Fixed with light outlet 160 mm Fixed with light outlet 160 mm Fixed with light outlet 160 mm
Tail light Light outlet 95 mm Light outlet 95 mm Light outlet 95 mm
Combined with brake light Contact on the rear brake lever Contact on the rear brake lever Contact on the rear brake lever
Turn signals On both sides of the handlebar ends (switch on the handlebar right) On both sides of the handlebar ends (switch on the handlebar right) On both sides of the handlebar ends (switch on the handlebar right)
Flasher unit In the headlight housing In the headlight housing In the headlight housing
Signal horn Under the fuel tank Under the fuel tank Under the fuel tank
High beam Actuation by push button under the low beam switch Actuation by push button under the low beam switch Actuation by push button under the low beam switch

1.4. Transmission

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ESN 175/1 ESN 250/1 ESN 300
Clutch Multi-disc clutch in oil bath (on crankshaft stub) Multi-disc clutch in oil bath (on crankshaft stub) Multi-disc clutch in oil bath (on crankshaft stub)
Gear shift Foot shift Foot shift Foot shift
Number of gears 4 4 4
Gear ratios 1st gear 2.77:1 2.77:1 2.77:1
2nd gear 1.63:1 1.63:1 1.63:1
3rd gear 1.23:1 1.23:1 1.23:1
4th gear 0.92:1 0.92:1 0.92:1
Neutral indicator Electrical control lamp in the speedometer (green) Electrical control lamp in the speedometer (green) Electrical control lamp in the speedometer (green)

1.5. Power Transmission

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ESN 175/1 ESN 250/1 ESN 300
Transmission engine / gearbox by helical spur gears 2.43:1 = 28:68 teeth 2.43:1 = 28:68 teeth 2.43:1 = 28:68 teeth Repair Manual of the MZ Motorcycle ES 175/1, ES 250/1 and ES 300 http://www.mzVb.de/miraculis/aw/mz/text/es30r/es30r .html
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Transmission gearbox / rear wheel by roller chain 2.65:1 = 17:45 teeth 12.7x7.75x8.51 mm (1/2x5/16 inch) 2.25:1 = 20:45 teeth 12.7x7.75x8.51 mm (1/2x5/16 inch) (with sidecar: 2.65:1 = 17:45 teeth) 2.14:1 = 21:45 teeth 12.7x7.75x8.51 mm (1/2x5/16 inch) (with sidecar: 2.5:1 = 18:45 teeth)
Dynamic radius of the rear tire 281 mm 281 mm 281 mm

1.6. Chassis

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ESN 175/1 ESN 250/1 ESN 300
Frame Single tube frame, welded Single tube frame, welded Single tube frame, welded
Steering angle 63° 63° 63°