MZ - MZ_ETS_250_1972_Manual_de_reparatie

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Foreword
To give explanations about MZ motorcycles, we consider it unnecessary. 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! To ensure that the vehicles remain ready for use and reliable even after prolonged operation and the associated wear, we provide the necessary instructions for our MZ workshops at home and abroad with these repair instructions. Repair is a matter of trust in several respects: The safety of the driver depends on the reliable work of the mechanic.
Recognizing the actual fault, thus no unnecessary use of materials and less labor.
Resulting from this: no rework, short downtime and lower repair costs!
In order to make this possible, we do not describe pure locksmith work (we take handicraft skills for granted), but above all the distinguishing 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. We would like to emphatically point out this recommendation, especially to self-service workshops and hobbyists, so that considerable additional effort in working time and material does not arise due to false optimism.
Our MZ contract workshops can obtain the special tools from the MZ spare parts sales department, but for hobbyists there is the possibility of self-construction with the help of the sketches provided in the appendix.
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 them every success.

VEB MOTORRADWERK ZSCHOPAU
Customer Service Department

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1.1 Engine
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	ES 175/2	ES 250/2
Operating Principle	Two-stroke (loop scavenging)	Two-stroke (loop scavenging)
Cooling Type	Air (ram air)	Air (ram air)
Number of Cylinders	1	1
Stroke / Bore (in mm)	65 / 58	65 / 69
Displacement	172 ccm	243 ccm
Compression Ratio	9:1	8.5:1
Compression Chamber of Cylinder Head (in assembled condition)	21 +/- 0.5 ccm	33 + 1 ccm
Max. Power at	5200...5500 rpm 13.5 DIN hp = 9.9 kW or 15 SAE hp	5000...5300 rpm 17.5 DIN hp = 12.9 kW or 19.5 SAE hp
Max. Torque	1.85 kpm at 5000...5100 rpm	2.5 kpm at 4500...4700 rpm
Lubrication	Mixing ratio 33:1 with two-stroke engine oil	
Connecting Rod Bearing	Caged needle bearing for crank pin (KN 28x35x20) and piston pin (KKN 18x22x24 NF)	
Crankshaft Main Bearing	2 bearings 6305 c 003 f (low noise), 1 bearing 6302	
Lubrication of Crankshaft Main Bearings	By transmission lubricant	
Piston	With 2 piston rings, upper ring chromed	With 3 piston rings, upper ring chromed
Piston Mass with Rings, Pin and Clips	240 + 5g	360 + 5g
Cylinder	(Wide finned) with cast-in liner made of special gray cast iron	
Valve Timing in Degrees Crank Angle		
Intake	140°	140°
Transfer	113°	113°
Exhaust	165°	160°

1.2 Carburetor
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	ES 175/2	ES 250/2
Type	BVF N 26 N 1-1	BVF N 28 N 1-1

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Bore	26 mm	28 mm
Main Jet	100	107
Needle Jet	65	67
Part Throttle Needle No.	K 2 with 5 notches	K 3 with 5 notches
Needle Position from Top	3...4 *) (4th for break-in period)	3...4 *) (4th for break-in period)
Starting Jet	90	100
Idle Jet	35	40
Float Needle Valve	18	18
Idle Air Screw	1 1/2 ... 2 1/2 turns open	2 ... 3 turns open
Transition Bore	1.5 mm	1.5 mm

| Idle Bore | 0.8 mm | 0.8 mm |
| *) For the adjustment, in addition to the driving behavior, the spark plug appearance is decisive! | | |

1.3 Electrical System
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	ES 175/2	ES 250/2
Ignition	Battery Ignition	Battery Ignition
Ignition Timing	3.0 +/- 0.5 mm before TDC with fully extended centrifugal weights = 22° 15' crank angle	3.0 +/- 0.5 mm before TDC with fully extended centrifugal weights = 22° 15' crank angle
Breaker Point Gap	0.3 + 0.1 mm	0.3 + 0.1 mm
Spark Plug	Isolator M 14/260	Isolator M 14/260
Electrode Gap	0.6 mm	0.6 mm
Generator	DC, 6V, 60W, Short-term 90W
Charge Control Lamp	(Red) in the speedometer
Regulator	RSC 60/6, under the left fairing
Battery	6V, 12Ah (lead-acid flat battery)
Ignition Coil	6V, under the left fairing
Headlight	Fixed, 170 mm light exit, low beam asymmetrical
Dimmer Switch	On the left handlebar
Brake/Tail/License Plate Light	
Brake Light Contact	On the rear brake lever
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Turn Signals	On both sides of the handlebar ends (switch on the right handlebar)
Flasher Relay	In the headlight housing
Signal Horn	Under the fuel tank
High Beam	Is activated by push button under the dimmer switch
Bulbs	
Bilux	6V, 45/40W, low beam asymmetrical
Parking Light	6V, 4W, socket BA 9s
Brake Light	6V, 18W, socket SN 8.5
Tail Light	6V 5W, socket SN 8
Turn Signal	6V, 18W, socket SN 8.5
Charge Control	6V, 1.2W
Neutral Indicator	6V, 1.2W
Speedometer Illumination	6V, 1.2W

1.4 Transmission
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	ES 175/2	ES 250/2

Shifting	Foot shift (ratchet, segment, cam drum)
Number of Gears	4
Gear Ratio	
1st Gear	2.77:1 = 13:36 teeth
2nd Gear	1.63:1 = 19:31 teeth	1.8:1 = 15:27 teeth (from engine no. 4512291 and engine no. 4623112)
3rd Gear	1.23:1 = 22:27 teeth
4th Gear	0.92:1 = 25:23 teeth
Bearing on Drive Shaft	6204 (20x47x14) and 6203 (17x40x12)
Bearing on Output Shaft	6203 (17x40x12) and 6204 (20x47x14)
Neutral Indicator	Electrical control lamp (green) in the speedometer

1.5 Power Transmission
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	ES 175/2	ES 250/2
Clutch	On left crankshaft stub, in oil bath. 5 friction discs with cork content	
Ratio Engine/Transmission	By helical spur gears 2.43 : 1 = 28 : 68 teeth	
Ratio Transmission/Rear Wheel	By roller chain 2.65 : 1 = 17 : 45 teeth 12.7x7.75x8.51 mm (1/2x5/16 inch) 116 links	2.14 : 1 = 21 : 45 teeth 118 links (With sidecar: 2.65 : 1 = 17 : 45 teeth)

1.6 Chassis
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	ES 175/2	ES 250/2
Frame	Closed single-tube frame, welded, steering head brazed. Intake air through upper frame tube, elastic engine mounting in silent blocks	
Steering Angle	63°	
Trail	105 mm	
Trail with Sidecar	65 mm	
Suspension Type	Long swingarm front and rear	
Front Suspension	Telescopic fork with oil-hydraulic damping, travel 142 mm	
Rear Suspension	Strut with oil-hydraulic damping, spring hardness adjustable, travel 115 mm	
Wheels	Wire-spoke wheels with uncranked spokes	
Rim Size	Front 1.85 Bx16 Rear 2.15 Bx16	
Tires	Front 3.25-16 (or 3.00-16) Rear 3.50-16	
Tire Pressure (Gauge Pressure)		

Front	1.4 atm	
Rear	1.9 atm for solo ride 1.9 atm for solo ride	
	2.1 atm for passenger ride 2.1 atm for passenger ride and sidecar operation 2.6 atm for fully occupied team	