MZ - MZ_ES_175_250_Manual_de_reparatie

Index

Foreword

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 adverse operating conditions, MZs roll to the satisfaction of their owners! In order that the vehicles remain ready for use and reliable even after prolonged operation and the associated wear, we provide with this repair manual the necessary instructions for our MZ workshops at home and abroad. Repair is a matter of trust in several respects: Reliable work by the mechanic, on which the safety of the driver depends.

Recognizing the actual fault, thereby avoiding unnecessary use of materials and reducing labor.

Resulting in: No rework, short downtime and lower repair costs!

To make this possible, we do not describe purely locksmith work (we assume manual skills as a matter of course), but above all the distinguishing features of various types of damage 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 expenditure of labor and material does not arise due to false optimism.

Our MZ contract workshops can obtain the special tools from the MZ spare parts distributor, but hobbyists have the possibility of self-construction with the help of the sketches attached 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 book and wish you every success.

VEB MOTORRADWERK ZSCHOPAU
Dept. Customer Service

TABLE OF CONTENTS

8.9 Change Wheel Bearings
8.10 Install or Replace Secondary Chain
8.11 Speedometer Drive
8.12 Clean Silencer
8.13 Check Chain Slack
8.14 Rear Wheel Tracking
9 Repairing Shock Absorbers
10 List of Special Tools Repair Manual of the MZ Motorcycle ES 175/2 & 250/2 http://www.mzVb.de/miraculis/aw/mz/text/es252r/es25 2rep.html
2 of 107 17.10.2008 22:39
11 Self-Construction Sketches for Special Tools
12 Conversion Table
Appendix
Wiring Diagram (Electrics)
Exploded View Engine ES/TS 125/150
Exploded View Engine ES 250/2
Picture 1. ES 175/2 / ES 250/2 (de Luxe) with Bench Seat
Picture 2. ES 175/2 / ES 250/2 with Single Seats Repair Manual of the MZ Motorcycle ES 175/2 & 250/2 http://www.mzVb.de/miraculis/aw/mz/text/es252r/es25 2rep.html
3 of 107 17.10.2008 22:39
Picture 3. Engine in Cross-Section
Picture 4. Engine in Longitudinal Section 1 Technical Data Repair Manual of the MZ Motorcycle ES 175/2 & 250/2 http://www.mzVb.de/miraculis/aw/mz/text/es252r/es25 2rep.html
4 of 107 17.10.2008 22:39
1.1 Engine
next point ; Index

ES 175/2 ES 250/2
Operating Method Two-stroke (Reverse Scavenging) Two-stroke (Reverse Scavenging)
Cooling Type Air (Airflow) Air (Airflow)
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 state) 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 (KN28x35x20) and piston pin (KKN18x22x24 NF)
Crankshaft Main Bearings 2 Bearings 6305 c N 003 f (low noise) 1 Bearing 6302
Lubrication of Crankshaft Main Bearings through transmission lubricant
Piston with 2 piston rings, upper ring chrome plated with 3 piston rings, upper ring chrome plated
Piston Mass with Rings, Bolts and Retainers 240 + 5g 360 + 5g
Cylinder (Wide Fins) with cast iron liner made of special grey cast iron

Timing in Degrees Crank Angle Intake 140° 140°
Transfer 113° 113°
Exhaust 165° 160°

1.2 Carburetor
next point ; Index

ES 175/2 ES 250/2
Type BVF N26 N 1-1 BVF N28 N 1-1 Repair Manual of the MZ Motorcycle ES 175/2 & 250/2 http://www.mzVb.de/miraculis/aw/mz/text/es252r/es25 2rep.html
5 of 107 17.10.2008 22:39
Passage 26 mm 28 mm
Main Jet 100 107
Needle Jet 65 67
Partial Load Needle No. KN2 with 5 Notches KN3 with 5 Notches
Needle Position from Above 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, the spark plug appearance is decisive in addition to the driving behavior!

1.3 Electrical System
next point ; Index

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 Contact 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
Alternator DC, 6V, 60W, Short-term 90W
Charging Control Lamp (red) in the Speedometer
Regulator RSC 60/6, under the left fairing
Battery 6V, 12 Ah (Lead-acid Flat Battery)
Ignition Coil 6V, under the left fairing
Headlight Fixed 170 mm Light Exit, Low Beam Asymmetrical
Dimmer Switch on the Handlebar Left
Brake/Tail/License Plate Light
Brake Light Contact on the Rear Brake Lever Repair Manual of the MZ Motorcycle ES 175/2 & 250/2 http://www.mzVb.de/miraculis/aw/mz/text/es252r/es25 2rep.html
6 of 107 17.10.2008 22:39

Turn Signals on both sides on the handlebar end (Switch on the handlebar right)
Flasher Relay in the Headlight Housing
Signal Horn under the Fuel Tank
High Beam is operated by push button under the dimmer switch
Bulbs Bilux 6V, 45/40W, Low Beam Asymmetrical
Parking Light 6V, 4W, Base BA 9s
Brake Light 6V, 18W, Base SN 8.5
Tail Light 6V 5W, Base SN 8
Turn Signal 6V, 18W, Base SN 8.5
Charging Control 6V, 1.2W
Neutral Indicator 6V, 1.2W
Speedometer Illumination 6V, 1.2W

1.4 Transmission
next point ; Index

ES 175/2 ES 250/2
Shifting Foot Shift (Ratchet, Segment, Cam Roller)
Number of Gears 4
Gear Ratio
1st Gear 2.77:1 = 13:36 teeth
2nd Gear 1.63:1 = 19:31 teeth
2nd Gear 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 Electric control lamp (green) in the speedometer

1.5 Power Transmission Repair Manual of the MZ Motorcycle ES 175/2 & 250/2 http://www.mzVb.de/miraculis/aw/mz/text/es252r/es25 2rep.html
7 of 107 17.10.2008 22:39
next point ; Index

ES 175/2 ES 250/2
Clutch on the left crankshaft end, in oil bath. 5 friction plates with cork content
Transmission Engine-Gearbox through helical gears 2.43:1 = 28:68 teeth
Transmission Gearbox-Rear Wheel through 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
next point ; Index

ES 175/2 ES 250/2
Frame Closed single-tube frame, welded, steering head hard soldered. Intake air through the upper frame tube, elastic

engine mounting in silent blocks
Steering Angle 63°
Trail 105 mm
Trail with Sidecar 65 mm
Type of Suspension Long swingarm front and rear
front Suspension strut with oil-hydraulic damping, spring travel 142 mm
rear Suspension strut with oil-hydraulic damping, spring hardness adjustable, spring travel 115 mm
Wheels Wire spoke wheels with uncranked spokes
Rim Size
front 1.85 B x 16
rear 2.15 B x 16
Tires
front 3.25-16 (or 3.00-16)
rear 3.50-16
Tire Pressure (at Overpressure)
front 1.4 at
front 1.4 at
rear 1.9 at for solo riding
rear 1.9 at for solo riding
rear 2.1 at for passenger riding
rear 2.1 at for passenger riding and sidecar operation 2.6 at for fully occupied rig