MZ - MZ_ES_125_150_Manual_de_reparatie

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

To ensure that the vehicles remain ready for use and reliable even after prolonged operation - and the associated wear and tear - we provide the necessary information for our MZ workshops at home and abroad with this repair manual.

A repair is a matter of trust in several respects:

Reliable work of the mechanic: the safety of the driver depends on this.

Recognizing the actual fault: This avoids unnecessary use of materials and reduces labor.

Resulting from this: no rework, short downtime and low repair costs!

To make this possible, we describe not only pure locksmith work, but also the distinguishing features of various types of damage and their causes.

The prerequisite for a professional repair is to always work with the special tools and aids recommended by the factory. These can be obtained from the MZ spare parts sales - the sketches in the appendix can be used for self-construction.

We would like to expressly point out this recommendation to particularly "self-service workshops" and hobbyists, so that significant additional expenditure of working time and material does not arise due to false optimism.

We hope to provide the employees of our contract workshops at home and abroad, as well as our MZ friends all over the world, with the necessary "knowledge" with this reference work and wish you every success.

VEB MOTORRADWERK ZSCHOPAU
Customer Service Department

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Figure 1. ES 125 150, version 1964/65

1. Technical Data
1.1. Engine ES 125 ES 150

Operating principle	Two-stroke reverse scavenging	Two-stroke reverse scavenging
Cooling type	Air (Forced air)	Air (Forced air)
Number of cylinders	1	1
Stroke / Bore	58/52	58/56
Displacement	123 cm3	143 cm3
Compression Ratio	9:1	9:1
Compression chamber with spark plug screwed in	15.4 cm3	18.0 cm3
Power at 5500 / 5800 rpm	6.2 kW = 8.5 DIN-HP	7.35 kW = 10 DIN-HP or 11 SAE-HP or 9.5 SAE-HP

Max. Torque 1.10 kpm 1.35 kpm
Lubrication Mixture lubrication 33:1 with Hyzet two-stroke
engine oil
Crankshaft main bearing lubrication Cage guided needle bearing
3 Ball bearings 6303 c 003
(Low noise 17 X 47 X 14)
Piston Lubricated by transmission oil
Piston with 2 rings (2 mm wide)
(Only use with identification letter "A" and for wide rib
cylinder with identification letter "B".
Note text to Figure 74!)
Piston mass complete with rings, pin and 160 +- 5g 200 +- 5 g
retainers
Cylinder Light alloy with cast in liner
made of special grey cast iron
Timing in degrees of Crank Angle
(Also for wide fin cylinders):
Inlet with Tip 142° 142.5°
Inlet without Tip 126° 126°
Transfer 110° 110°
Exhaust 152° 150°

1.2. Carburetor
1.2.1. 22 KNB and 24 KN Carburetors
Type BVF 22 KNB 1-3 BVF 24 KN 1-2
(Two-lever slide valve with multi-hole atomizer)
Carburetor Specifications:
Passage in mm 22 24
Main jet 110 115
Needle jet 70 70
Throttle needle No. i with 5 notches 3 with 7 notches
Needle position from top 2...4 (4 for the break in 3...6 (6 for the break in
period) period)
Idle jet 35 45
Slide cutaway 3.5 mm 4 mm
Idle air screw 1.5 - 2.5 turns open 1.5 - 2.5 turns open
Fuel level in mm 21 +- 1 28 +- 1

1.2.2. 22 N and 24 N Carburetors
Type BVF 22 N 1-1 BVF 24 N 1-1
(Starter Carburetor) (Starter Carburetor)
Carburetor Specifications:
Passage in mm 22 24
Main jet 90 92
Needle jet 67 65

Throttle needle No. C1 C3
Needle position from top 3* 3*
(4 for break in period) (4 for break in period)
Starting jet 70 75
Idle jet 35 40
Idle air screw 1.. 2 turns open 2...3 turns open
Slide cutaway 4 mm 3 mm
Air filter Wet air filter with intake silencer
Version 1962/63
from 1964 Dry air filter (filter paper cartridge) with intake silencer

1.3. Electrical System
Ignition Battery ignition Battery ignition
Ignition timing 4.5 mm before TDC 4.0 mm before TDC
for wide fin cylinder fixed setting fixed setting
3.0 mm before TDC 3.0 mm before TDC
Breaker point gap 0.4 mm 0.4 mm
Spark Plug Isolator M 14/240 Isolator M 14/240
Electrode gap 0.6 mm 0.6 mm
Generator DC, 6 V, 60 W, short time 90 W
Charging indicator light (red) In the speedometer
Regulator RSC 60/6
Battery 6 V, 12 Ah (Lead acid battery - flat battery)
Ignition coil 6 V, under the left side panel
Headlight Fixed - Light output 136 mm Light output 95 mm
Taillight Contact on the rear brake lever
combined with brake light
Turn signals On both ends of the handlebar (switch on the handlebar, right)
Flasher relay In the headlight housing
Horn Under the fuel tank
High beam Operated by push button under the dimmer switch
Bulbs
Bilux 6 V, 45/40 W, dipped beam asymmetric
Parking light 6 V, 2 W, base BA9s
Brake light 6 V, 18 W, base S 8.5
Taillight 6 V, 5 W, base S 8
Turn signal 6 V, 18 W, base S 8.5
Charging control 6 V, 1.2 W
Neutral indicator 6 V, 1.2 W
Speedometer light 6 V, 1.2 W

1.4. Gearbox

Clutch Multi-disc clutch in oil bath
Shift linkage Foot shift, left
Number of gears 4
Gear ratios
1st gear 3.05:1
2nd gear 1.805:1
3rd gear 1.285:1
4th gear 1:1
Bearings on clutch shaft 6202 (15X35X11)
Bearings on countershaft 6201 (12X32X10)
Bearings on shift drum 6004 (20X42X12)
Neutral indicator Electrical indicator lamp (green) in the
speedometer

1.5. Power Transmission
Gear ratio
Engine - Gearbox ES 125 ES 150
2.31 :1 = 16:37 teeth 3.2:1 = 15:48 teeth 3.0:1 = 16:48 teeth
A 9.55X 7.5 (3/8 X 5/16 Inch) 48 Links
Sleeve chain
Gearbox - Rear Wheel 12.7 X 6.4 X 8.51 (1/2 X 1/4 Inch) 120 Roller chain

*) Adjustment range within needle position 2..4, always note the "spark plug color."
ES 125 ES 150
Roller Chain

1.6. Chassis
Frame Closed pressed steel frame, folded
Steering head angle 61°
Trail 95 mm
Type of suspension
Front Front and Rear Long swing arm
Rear Shock absorber with hydraulic damping,
Travel 150mm
Shock absorbers with hydraulic damping,
Travel 100 mm. Spring hardness adjustable
Wheels Wire spoke wheels
Rims, front and rear 1.85 B X 18 1.85 BX 18
Tires, front and rear 3.00 - 18 3.00 - 18
Effective radius of the rear tire 292 mm
Tire inflation pressure (in at above atmospheric pressure)
Front 1.4 1.4
Rear 1.8 for solo ride 1.8 for solo ride
2.0 for passenger ride 2.0 for passenger ride
Brakes Central brakes 150mm diameter, 30 mm shoe width

Brake actuation Mechanical, by cables for both brakes

1.7. Dimensions and Masses (Weight)
Wheelbase 1270 mm 1270 mm
Length 1990 mm 1990 mm
Width (with turn signals) about 750 mm about 750 mm
Height (with mirror), unloaded about 1150 mm about 1150 mm
Ground clearance, loaded about 100 mm about 100 mm
Curb weight (previously empty weight) 112 kg 112 kg
Load capacity 158 kg 158 kg
Permissible total mass 270 kg 270 kg

1.8. Filling Quantities
Gearbox 0.45 l Engine oil (according to the season
summer or winter oil)
Fuel tank 12 l Fuel-oil mixture 33:1
Reserve about 1.5 l
Shock absorbers
Front 80 cm3 shock absorber fluid "Globo"
Rear 70 cm3 shock absorber fluid "Globo"
Viscosity 1.65...1.92 °E/50 °C = 8...11 cSt 50 °C
Abroad only use brand name damper fluid with the same viscosity!

1.9. Braking Deceleration
7.1 m/s2 on grippy concrete pavement (highway). With new tires and
proper operation of both brakes, the following braking distances result:
30 km/h 4.9 m
60 km/h 19.4 m
90 km/h 44.0 m
The driver's reaction time is not taken into account.

Diagrams RH ES 125/150

Figure 4. Power, specific consumption and torque of the ES 125

Figure 5. Power, specific consumption and torque of the ES 150

Figure 6. Road fuel consumption of the ES 125 in 4th gear

Figure 7. Road fuel consumption of the ES 150 in 4th gear

Figure 8. Acceleration of the ES 125/150

2 Operating Fluids
2.1. Fuel

For both ES types - according to the compression ratio of 9:1 -