



# Malaysia Abilympics Competition

## 13. Motorcycle Mechanics

### 1. Task Assignment

The task consists in the completion of two modules.

- Module n°1: Motorization.

Using a provided guide sheet with a pre-established diagnostic and a single-cylinder engine type Suzuki RMZ 450, contestants will:

- Form hypotheses, searching for the necessary information and establishing the procedure sheet.
- Dismantle the engine (disassembly of the cylinder head, cylinder and piston).
- Complete the engine's metrology and assess the degree of wear of its elements.
- Identify which parts to replace and ask the jury for the substitutes necessary to repair the engine.
- Perform the reassembly and making sure the system functions properly.

- Module n°2: Diagnosis.

Contestants will establish the diagnostic of the ignition and fuel injection systems, take measurements, identify the deficient part(s) and complete the repairs.

Contestants will use: - KDS (Kawasaki Diagnostic System) diagnostic software (English and French versions)

- A procedure sheet which will be provided on the day of the competition.
- One Kawasaki Z750 or Z800 motorcycle (or similar model).

### 2. Allocated Time

5 hours of competition (2 days)

- Module n°1: duration 3h30.
- Module n°2: duration 1h30.

### 3. Requirements

- Contestants will respect the technical specifications.
- Contestants will respect the rules of safety and hygiene, as well as the jury's instructions and their work station.
- Any contestant caught cheating, talking to someone from the public or using a communication device will suffer a penalty of 5 points for the first transgression. A second transgression will lead to an exclusion from the contest.

#### 4. Procedure








On the day of the competition, contestants will be welcomed by members of the jury. A briefing about the organisation of the competition and the safety rules will be arranged. Contestants will draw lots to be assigned to a work station.

Day 1 : All contestants will have 3 hours and 30 minutes to complete module n°1. At the end of module n°1, a 15-minute briefing about the use of the KDS software will be organized, after which contestants will have a 15-minute Q&A session with members of the jury.

Day 2 : Contestants will have 1 hour and 30 minutes to complete module n°2.

#### 5. List of the provided equipment

*Non-exhaustive list.*

No.	Equipment	Photo	Specifications	Qty per contestant
1	Workbench		Height can be adapted to each contestant's specific handicap	1
2	Flywheel puller		RMZ 450	1
3	Exhaust extraction system			1
4	Metrology tools: micrometer			1
5	Cylinder bore gauge		For measuring the diameter of the cylinder	1
6	Filler gauge			1
7	Plastigauge			1 set

8	Valve adjustment shim kit			1
9	Torque wrenches		One 2m.daN and one 10m.daN	2 wrenches
10	Gaskets			1 set
11	Gasket sealant			1 pack
12	Trashcans		3 bins for waste separation	1 set for everyone
13	Oil container		For waste separation	1

#### 6. List of tools to be brought for each contestant

No.	Tool	Photo	Specifications	Notes
1	T-wrench		Sizes 8, 10, 12, 14 and 17	1 set
2	Box wrenches		Sizes de 8, 10, 12, 14 et 17	1 set
3	Hex keys		Sizes 4, 5 and 6	1 set
4	Screwdrivers		Flat-head and cross-head	1 set
5	Multimeter		For measuring resistance and voltage	1

6	Working clothes		Contestant's choice	1
7	Safety shoes		Contestant's choice	1 pair
8	Work gloves		Contestant's choice	1 pair
9	Safety glasses		Contestant's choice	1 pair

## 7. Evaluation Criteria

No.	Evaluation Criteria	Scoring scale
<b>Motorization module : 60</b>		
1	Respect of the rules of safety, hygiene and waste sorting management	5
2	Organization of the work station and method	5
3	The chronology of disassembly is coherent and the disassembly is performed correctly	5
4	The metrological measurement of the cylinder ovalization is correct	3
5	The metrological measurement of the cylinder conicity is correct	3
6	The metrological measurement of the camshaft lubrication play is correct	3
7	The metrological measurement of the end gap (segmentation) is correct	3
8	The metrological measurements cam height intake are performed correctly	3
9	The metrological measurements cam height evacuation are performed correctly	3
10	The metrological measurement of the valves adjustment are performed correctly	3
11	The defective part(s) is identified correctly	6
12	The chronology of reassembly is coherent and the reassembly is performed correctly	5
13	Distribution calibration is correct and allows for proper functioning	8
14	The various elements are not damaged	5
<b>Diagnosis module : 40</b>		
15	The origin of the malfunction is properly identified with KDS	5

16	The measurement of the power supply tension is correct	5
17	The measurement of the variable tension is correct	5
18	The defective part is properly identified	5
19	The repair operation is performed correctly, the system functions properly	10
20	The KDS diagnosis software is used properly	5
21	Time allocated to the module is respected, the intervention is performed in its entirety	5
<b>TOTAL POINTS</b>		<b>100</b>