



7th International Abilympics

Vocational Skills Contest

V20. Mechanical Assembly

1. Task

Assemble a 24-speed mountain-bike (26-inch, made in Japan) using common hand tools, and make subsequent adjustments.

2. Allocated time

Maximum 3 hours

3. Instructions

- It is not allowed to use any equipment/tools which are attached with measuring tools including meters and gauges.
- It is allowed to use electric tools (but only battery-powered ones, in principle).
- Contestants are not allowed to lend or borrow tools, etc., during the contest.
- Contestants shall notify the judge when they finish the task.

4. General guidelines

Contestants shall first disassemble the supplied mountain bike (70% pre-assembled), then accurately re-assemble it and make subsequent adjustments of the completed bike. Note that a professionally assembled sample bicycle, fully adjusted, will be displayed so that contestants can refer to it for correct assembly and adjustment to finish the task.

Task 1. Disassembling work

- a. Disassembly may be done in any order.
- b. The disassembled state shall conform with the specifications shown in the attached illustration.
- c. It is not necessary to remove the shifters, brake levers, and grip from the handle.

(Note) The contestant may start to assemble only after the judge has confirmed completion of disassembly.

Task 2. Assembly work

- a. Re-assemble the disassembled bike fully adjusted. Assembly may be done in any order. The benchmark for the completed bike is one that runs safely for ordinary use (the wheel must not be more than 1.00mm out of true, and the spoke tension of the rear wheel must be 400N (4kgf) for the freewheel side and 300N (3kgf) for the opposite side).
- b. The rear wheel brake shall be assembled on the left side of the handle bar (brake lever), while the front wheel brake shall be assembled on the right side.
- c. The gearshift lever on the left side of the handle lever shall shift the front gearshift (triple gear) and the one on the right side shall shift the rear gearshift.

5. Materials to be provided

- Cable wire cap: 4 pieces
- Chain link pin: 2 pieces
- Spoke nipple: 5 pieces
- Rim tape: 1

No other materials will be provided.

6. Items to be prepared on site

- Mountain bike
- Lock ring clincher (impact wrench): (for attaching and removing the rear free wheel)
- Sprocket remover (for 1/2 pitch): (for attaching and removing the rear free wheel)
- Chair

7. Tools, etc. to be brought by each contestant

A set of assembling tools

Assembling table (for contestants who need it)

(Note) Contestants who wish to bring their own tools including those listed in section 7 above are requested to prepare a list of such tools and present it to the organizer for approval in advance. The organizer reserves the right not to allow the use of any tools that are considered to give the contestant an unfair advantage.

8. Evaluation Criteria

The skills of each contestant will be assessed based on the final work produced.

| Items to be evaluated | Maximum marks allotted |
|---|------------------------|
| Installation state of front and rear wheels and assembly of rear wheel | 35 |
| Installation state of handle system, handle bars, saddle, etc. | 20 |
| Installation state of front and rear brakes and cables | 40 |
| Installation of pedals, front and rear derailleur (exterior derailleur) and chain | 35 |
| Overall quality of work | 5 |
| Total | 135 |

State when the disassembly is finished (Mountain bike)

