

Technical Description

Bicycle Assembly

Skill 15



1 Skill Overview	3
2 Task Assignment Overview	4
3 Materials and Equipment	6
4 Skill-Specific Requirements	12
5 Assessment Framework	14

1 Skill Overview

1.1 Skill Name and Category

Bicycle Assembly, Industry

1.2 Number of Competitors

This is an individual Skill Competition with one competitor.

1.3 Competition Time

The total competition time is 4 hours 30 minutes and consists of the following module:

- Module A: Bicycle Assembly – 4 hours 30 minutes

1.4 Description of the Skill

Bicycle Assembly involves assembling a complete bicycle from a disassembled kit, following the manufacturer's technical datasheet and assembly instructions. Each competitor receives a package containing all necessary components and documentation. A fully assembled and properly adjusted bicycle is available in the competition area as a reference.

Competitors must demonstrate precision, mechanical aptitude, and attention to detail while ensuring that the final product is safe, functional, and meets operational standards.

2 Task Assignment Overview

2.1 Task Assignment Description and Familiarisation Session

The Task Assignment is the main competition task used to assess the competitors' skills. It defines what the competitors must complete during the competition and forms the basis for all assessments. The final result is evaluated only on the finished work produced during the official competition time.

A familiarisation session is organised on C-1. During this session, competitors may enter the workshop, see the workspace, check the available tools and materials, and ask questions about procedures or practical arrangements. Competitors are not allowed to practise, start, or rehearse any part of the Task Assignment during this session.

2.2 Task Assignment Structure

The competition consists of one module:

Module A: Bicycle Assembly

Competition time: 4 hours 30 minutes

Competitors assemble a city or mountain bike from a disassembled kit, following the manufacturer's assembly instructions. Some components may be pre-installed.

Competitors must assemble and adjust the required bicycle components and accessories and regularly check the quality and correctness of their work. The completed bicycle must undergo final adjustments, functional checks, and a complete safety inspection to ensure that all components and systems are correctly installed, aligned, tightened, safe, and functional.

The bicycle brand will be revealed when the Task Assignment is issued.

2.3 Task Assignment Technical Requirements

Competitors are required to demonstrate the following skills and knowledge:

- install and adjust the bicycle drivetrain, crankset, and pedals;
- install and adjust derailleur gears;
- install and correctly tension the chain;
- install and adjust the fork, stem, and handlebar;
- install and adjust the brake system;
- install and adjust the seat post and saddle;
- install cables and their housings;
- identify and correct wheel alignment or axle problems;
- assemble and install inner tubes and tyres;
- install wheels correctly;
- install lights, mudguards, carrier racks, and other accessories where applicable;
- follow the manufacturer's technical documentation and assembly instructions;
- use appropriate bicycle assembly tools safely and correctly;
- carry out adjustments and functional checks;

- inspect the completed bicycle and its systems for correct assembly, adjustment, functionality, and safety.

The Task Assignment defines the exact requirements, including the bicycle type, components, accessories, assembly requirements, and any task-specific variations or additional elements.

3 Materials and Equipment

3.1 Materials and Equipment Provided by the Competition Organiser

The Organiser provides the materials, tools, and equipment listed below.

Images are for reference only. They do not indicate a specific brand or model unless otherwise stated in the specifications. Quantities are per competitor unless otherwise stated.

Items will be available at the competitor's workstation or in the designated competition area, as appropriate. Where exact brands, models, or task-specific material details are not specified, these may be confirmed before the competition or defined in the Task Assignment, as appropriate.

No.	Equipment / Material	Picture	Specifications	Quantity
01	Bicycle parts			1
02	Workstation with workbench		Height can be adjusted if necessary	1
03	Bicycle repair stand			1
04	Floor pump with pressure gauge			1
05	Wheel truing stand			1



06	Wheel alignment gauge			1
07	Torque wrench		3–15 Nm	1
08	Torque wrench		10–60 Nm	1
09	Tyre levers			1
10	Wheel cone wrench set		8–21 mm	1
11	Pedal wrench			1
12	Cartridge bottom bracket remover			1
13	Crank puller		Suitable for conventional cartridge and HOLLOWTECH/OCTALINK systems	1
14	Cassette remover		With safety pin and chain whip	1
15	Chain tool		Suitable for HG chains	1

				
16	Quick-link pliers			1
17	Cable and housing cutter		Suitable for brake and gear cables and housings	1
18	Freewheel remover			1
19	Bicycle-specific tool set		Suitable for the bicycle used in the competition	1
20	Spoke wrench			1
21	Bicycle display stand		For displaying the assembled bicycle	1
22	Lubricant and other consumables			1
23	Grease			Confirm

				
24	Degreasing product		Confirm	
25	Cleaning product		1	
26	Industrial paper towels		1	
27	Derailler cable housing		2 m	
28	Brake cable housing		2 m	
29	Brake cable		MTB	2
30	Gear shifting cable		MTB	2

			
31	Universal cable ends		5
32	Deraillleur dropout		10
33	Brake dropout		10

3.2 Materials and Equipment Supplied by Competitors

Competitors may bring only the materials, tools, and equipment listed below. Personal tools and equipment must fit within a toolbox or tool case suitable for checked luggage, with a maximum total weight of 23 kg, including the toolbox or case. This requirement does not apply to clothing, footwear, personal protective equipment (PPE), or equipment required due to the competitor's condition or special needs and agreed in advance with the Organiser.

Images are for reference only. They do not indicate a specific brand or model unless the specifications state otherwise. Quantities are per competitor unless otherwise stated.

No.	Equipment / Material	Picture	Specifications	Quantity
01	Toolbox with standard bicycle mechanic tools		Set of standard tools for bicycle mechanics, such as screwdrivers, various wrenches, tyre levers, and cable and housing cutters	1
02	Hammer			
03	Spoke wrench set			1

04	Allen key set		2–10 mm	1
05	Adjustable wrench			1
06	Professional work clothes		Competitor's choice	1
07	Safety shoes		Competitor's choice	1 pair
08	Work gloves		Competitor's choice	1 pair
09	Safety glasses		Competitor's choice	1 pair

3.3 Prohibited Materials and Equipment

Competitors may use only the materials, tools, and equipment listed in Sections 3.1 and 3.2, unless otherwise authorised by the Skill Manager or Chief Judge. This restriction does not apply to clothing, footwear, or personal protective equipment (PPE) required in Section 4.1, or to equipment required due to the competitor's condition or special needs and agreed in advance with the Organiser.

All other materials, tools, and equipment are not permitted.

4 Skill-Specific Requirements

4.1 Skill-Specific Requirements

The Skill-Specific Requirements below apply to this Skill Competition and must be followed in addition to the Abilympics Competition Rules. The Skill Manager or Chief Judge may provide additional instructions, as needed, to ensure the competition is conducted safely and fairly.

Topic	Skill-Specific Requirements
Materials and tools provided by the Organiser	Competitors must check all materials, tools, and equipment provided by the Organiser before the competition begins. If anything is missing, damaged, or defective, competitors must immediately inform the Judges. No replacements will be provided after competition time has commenced, unless authorised by the Judges. If equipment provided by the Organiser fails and the failure is confirmed not to have been caused by the competitor, the Chief Judge may grant additional time.
Use of personal tools	Competitors may bring and use only the personal tools, materials, and equipment listed in Section 3.2. This restriction does not apply to equipment required due to the competitor's condition or special needs and agreed in advance with the Organiser.
Personal protective equipment (PPE)	Competitors must wear work gloves and safety shoes. Safety glasses must be worn where required by the task.
Clothing / Uniform	Competitors must wear professional clothing suitable for bicycle assembly. Clothing must allow competitors to work safely and effectively at the workstation. Clothing, jewellery, or accessories that may create a safety risk or interfere with the competitor's work are not permitted. Clothing must not display large commercial logos or promotional branding. Small, non-distracting brand marks are permitted.
Sideline coaching	Competitors must remain at their workstations or within the designated competition area during competition time, unless authorised to leave by the Judges. Competitors may not communicate with other competitors or members of the public during competition time. Competitors may communicate with Judges, Interpreters, personal assistants, and other authorised persons when required. The role and permitted involvement of a personal assistant must be agreed in advance with the Organiser based on the competitor's condition or special needs.

Topic	Skill-Specific Requirements
Use of technology	Competitors may not use personal laptops, tablets, mobile phones, smartwatches, or other personal communication or electronic devices during competition time. Competitors must store such devices away and may access them only during the lunch break or at the end of the competition day. This restriction does not apply to devices required due to the competitor's condition or special needs and agreed in advance with the Organiser. Judges and Interpreters may use devices required for their official duties only as agreed by the Skill Manager and the Chief Judge. The Skill Manager and the Chief Judge may use devices required for competition management and will specify any additional restrictions or permitted device use within the competition area.

5 Assessment Framework

5.1 Assessment Principles

All Abilympics Skill Competitions are marked out of 100 points.

Points are divided between criteria that reflect the required skills and expected outcomes.

Two methods of assessment are used:

- **Measurement:** objective, factual scoring (e.g., size, accuracy).
- **Judgement:** expert evaluation of quality, technique, and artistic choices.

5.2 Assessment Areas

Detailed marking criteria and scoring are provided in the Task Assignment.

Assessment focuses on the following key areas:

Assessment Area	Points
Assembly of bicycle components	30
Wheels, brakes and accessories	25
Cables, adjustments and system setup	30
Quality, safety and final inspection	15
Total	100