

# **【The regulation of All Japan Robot Sumo Tournament】**

## **Chapter 1 General Rules**

(Objective)

Article 1 This document defines the rules and regulations of the All Japan Robot Sumo Tournament.

## **Chapter 2 Definition of a Match**

(Definition)

Article 2 For every unit of robot, a single operator and an assistant can be registered. However, the assistant is not allowed to operate the robot. Both contestants are required to follow the competition rules, definition of winning(defined below), control and compete using own made radio-controlled or autonomous robots or at the pre-allocated dohyo(match ring) area. The winner will be determined by the judges.

## **Chapter 3 Specifications of dohyo jyonai(the Match Ring Area)**

(Specifications of dohyo jyonai)

Article 3 Definition of dohyo jyonai(the match ring area)

1 Definition of dohyo jyonai(the match ring area)

(1) Dohyo jyonai(The match ring area) consists of dohyo (the match ring) and yochi(the outer layer area of dohyo(the ring)). The rest of the space will be deemed as area dohyo jyogai(outside dohyo(the match ring) area).

2 The specification of dohyo(the match ring)

(1) Dohyo(The match ring) is the circle that is covered by a black SPCC (JIS : Cold-reduced carbon steel)board on top of the 5-cm height, 154-cm diameter (including tawara(the dividing line))aluminum board.

3 Sikiri-Sen (The starting lines)

(1) Sikiri-Sen (The starting lines) are indicated as two brown lines with a width of 2 cm and a length of 20 cm. Each line is located 10 cm from the center of dohyo (the match ring).

4 Tawara(The dividing line)

(1) Tawara(The dividing line) is the 5cm white area outside dohyo(the match ring). Tawara(The dividing zone)/white area is considered as within dohyo(the match ring).

5 Yochi

(1) Yochi is the 100cm area from the outer layer of dohyo(the match ring). However, the color of yochi should be other than in white and configuration and materials can be chosen freely in the extent that doesn't detract mind of this regulation.

## Chapter 4 Specifications of the Robot

(The specifications of the robot)

Article 4 The specifications of the robot are as follows:

1 The specification of the robot

- (1) The robot should be 20 cm width and 20 cm depth (no restriction on the height), and able to be stored in a cubicle box for inspection purpose.

2 The weight of the robot

- (1) Less than 3kg (including accessories). However, if radio-controlled model is used, the weight of proportional control system (PCS) will be excluded from the 3kg limit.

3 The wave usable for radio controlled models.

- (1) Narrow band waves of 2.4 GHz, 27 MHz (01-12) and 40MHz (61, 63, 65, 67, 69, 71, 73, 75 band) .

\*The band waves defined here are the ones permitted to use for ground radio control devices in Japan. For other countries, please use the band waves permitted to use for such devices in each country.

4 Requirements of the Proportional Control system(PCS)

- (1) Only one PCS is allowed for each robot.
- (2) For PCS, Fujisoft shin rajikon system, Futaba, JR, Sanwa or Kondo Kagaku (KO Propo) can be used.

5 Crystal

- (1) Please inform and obtain the approval of the administration office prior to the competition of the wave range used by the crystal reception parts of the radio controlled systems. If the crystal style brought is insufficient / incomplete, contestants can opt to use those provided by the administration office.
- (2) Please take necessary precautions so that crystal reception parts built in the robot body will not drop off easily.
- (3) The restriction above is not applicable to Fujisoft shin rajikon system.

6 The autonomous type robots - Starting the movement

- (1) The autonomous type robots - Starting the movements The match will begin five seconds after the operating switch has been turned on.

\*However, if radio controlled models are used, the announcement of the main judges will mark begin of the match.

7 The autonomous type robots - Terminating the movements

- (1) As a safety measurement, "remote terminate function" has to be built in. In addition, the remote terminate function should be activated only via the remote control.
- (2) If the "remote terminate function" is based on radio wave, the wave length has to be within the wave range used in the competition.

8 The conditions of usage of blades

- (1) The usage of spare edge component for blade is prohibited. Components that maybe dispersed off from the robot body when in contacts with other robots or during the movement are prohibited as well.

9 The measures of fire prevention

- (1) To prevent the over-current to the battery, be equipped with fuse or poly-switch, or the blocking by the circuit.

(Movements of autonomous type robots)

Article 5 The movements of the robot should be designed to detect the movements of the opponent and respond/attack accordingly. If its movement is suspicious, operation check maybe made by indication of the judges. \*The check is carried out as the condition that a match terminates without program modification.

(The usage conditions of remote terminating function of autonomous type robots)

Article 6 During the competition, the remote control of the remote terminating function should be placed in pre-allocated station, and shall not be used until the terminating instruction board is displayed by the judges.

(Prohibited items in design and manufacturing of the robots)

Article 7 Any components that affect the operating wave, or components that may affect the operation of opponents such as flash, are prohibited.

- 2 Any components that may scratch or cause any damages on the surface of dohyo (the match ring) are prohibited.
- 3 Liquid, powder or gas are prohibited to be used as a weapon or attack mechanism against the opponent.
- 4 Inflammable components should not be installed in the robots.
- 5 The robot must not include a throwing device.
- 6 The robot must not include any parts that fix the robot to dohyo(the match ring) surface and prevents it from moving (such as suckers, glue and so on).

## Chapter 5 Game Principles

(Game principles)

Article 8 In principle, the competition time is based on three matches in three minutes.

Team who get two yuko points (effective points) within the competition time will be the winner.

- 2 If only one single yuko point has been got by the end of the competition time, the team that has get the yuko point will be the winner of the competition.
- 3 Within the competition time, if neither of the team wins any matches, the winner will be decided according to Article 15 - Yusei .If yusei cannot be decided, or the number of winning match is the same for both teams, the competition will be extended by three minutes. In the extension time, the team who get one yuko point in advance will be the winner of the competition.
- 4 Before the competition is over, all maintenance is prohibited. However, it's allowed in stand by time to the next match and program change for autonomous robots during the match.

## Chapter 6 The Execution of the Competition

(Safety Measurements)

Article 9 For the safety of the contestants and judges, goggle, gloves and sports shoes should be worn during the match.

- 2 For matches of radio-controlled types, PCS should be placed at allocated place and operated as per the terminating board displayed by the judges. The usage of PCS outside the match time is prohibited. PCS should not be used to place the robot into shikiri-sen(the starting line). Robots should be positioned in shikiri-sen(the starting line) manually (by hand) before the match begins.

(Beginning of the Game)

Article 10 The match will begin following the instruction of the judges. Contestants will bow to each other before entering dohyo jyonai(the match ring area). After that contestants shall put their robots on shikiri-sen(the starting lines) (any part of robot shall not go over the line toward the opponent) or within the extend lines vertically from the both edges of shikiri-sen(the starting lines) to white line.

- 2 Contestants should place the robots according to the pre-allocated dohyo(match ring) and the sign board displayed by the judges. Robots are not allowed to be moved after they have been placed.

- 3 For radio controlled models, the match will begin upon the notice of the main judges.
- 4 For autonomous robot models, the operating switch should be pressed upon the “begin” announcement of the judges. The match will begin five seconds after the switch has been turned on. Contestants are required to leave dohyo (the match ring) immediately.
- 5 Should there be any scratches/dirt on the dohyo(match ring), the judges will decide if the match can continue on the same dohyo(match ring) or changing to a new dohyo(match ring) is required.

(The Ending of the Game)

Article 11 The competition will officially end upon the announcement of the main judge. Contestants are required to carry the robot from dohyo(the match ring) before bowing to each other and leave dohyo jyonai(the match ring area).

- 2 Upon the ending of the match, contestants should follow the sign board displayed by the judge and terminate the robots. For autonomous models, contestants are required to terminate the robots using the remote control.

(Torinaoshi(Restart of a match))

Article 12 In the situations follows, the match will be suspended and resumed.

- 1 Both robots are stuck facing each other and further movements are not possible or both robots are marching against each other.
- 2 Both robots fall out into the outside dohyo(the match ring) simultaneously.
- 3 Other situations when win/lose is not possible to be determined.
- 4 If winning cannot be determined after torinaoshi(the match is restarted), the main judge may place the robots in the allocated position and resume the game within the allocated time.

## **Chapter 7 Yuko (effective) point, Shinitai and Yusei(Pre-dominance)**

(Yuko (effective) point)

Article 13 The winning is determined based on the following situations.

- 1 If the opponent robot is forced out of dohyo(the ring). (The robot touches outside dohyo(match ring) area)
- 2 The opponent robot falls out of dohyo(the match ring) by its own and touches outside dohyo(match ring) area.
- 3 As per “the Shinitai” condition stated on Article 14
- 4 As per “the yusei(pre-dominance)” situation stated on Article 15
- 5 If “keikoku(warning)” (defined in Article 6) was given twice to the opponent.
- 6 If the situations stated under Article 17 hansoku(Foul) were determined.
- 7 A winner who has been granted a win without a match in accordance with Article 20 Item 3, receives two Yuko points (if it has already had one Yuko point then one point will be granted.) and the acquired Yuko point(s) by the opponent who lost the game remain effective.

(Shinitai)

Article 14 One Yuko (effective) point will be granted as Shinitai situations follows:

- 1 A single win will be granted on the “Shinitai” situation if one or more wheels leave dohyo(the match ring), and not able to return to dohyo(the match ring). One Yuko point will be given to the opponent.

(Yusei(Pre-dominance))

Article 15 One Yuko (effective) point will be granted on the yusei(pre-dominant) situations follows:

- 1 In the matches, judges may based on the strategy, movements and skills to grant one Yuko point to the party with the yusei(pre-dominant) condition
- 2 On the conditions stated on Article 8 Competition Item 3

## **Chapter 8 hansoku(Foul) and Penalty**

(keikoku(Warning))

Article 16 A contestant who takes any of the following actions will receive a keikoku(warning). If a participant receives two keikoku(warnings), one Yuko point will be granted to the opponent.

- 1 The operator or a possession of the operator (remote control etc.) enters dohyo jyonai(the match ring area) before the judges'calls of match end.

- 2 There is a movement of the robot before the match begins (physical extension and movements)
- 3 Any violation of Article 6.
- 4 The robot is repositioned after it has been placed in dohyo(the match ring).
- 5 The contestants violate safety measurements stated in Chapter 9 Item 2.
- 6 Any other actions that may be deemed unfair.

(hansoku(Violations))

Article 17 If the following situation happens, the opponent or both parties will be granted one Yuko point.

- 1 If the components were dropped from the robots, and the dropped components were in moving condition.
- 2 If the robot is unmovable.
- 3 If both of the robots are moving but no contacts are made.
- 4 W when there is application from contestants to terminate the match.

(hansokumake(Loss by violation))

Article 18 A contestant who takes any of the following actions will lose the game by violation:

- 1 A contestant does not show up at the appointed dohyo(match ring) when called at the beginning of the game.
- 2 A contestant who sabotages the game. For example, by intentionally breaking, damaging or defacing dohyo(the match ring).
- 3 A contestant violates Article 4 "Specification of the robots".
- 4 If the movements listed on Article 5 "the requirements of autonomous robots" are not made.
- 5 If the contestant does not meet requirements stated on Article 9 Item 1.
- 6 If the fire comes out from the robot, or the referee has determined that in the same situation a fire comes out.

(Sikkaku(Disqualification))

Article 19 A contestant who takes any of the following actions will be disqualified and forced to leave the game and will not be on the ranking list:

- 1 A contestant's robot does not meet the "Specifications of the robots" stated in Article 7.
- 2 A contestant displays unsportsmanlike behavior. For example, using offensive language or assaulting opponents or judges.
- 3 A contestant intentionally injures the opponent.

### **Chapter 9 Injuries and accidents**

(Request for suspension)

Article 20 When a contestant is injured, and the game can not be continued, a suspension can be requested by the contestant.

- 2 In the event above, the judges will make necessary arrangements for the game to be resumed immediately.
- 3 If the arrangements made do not enable match to be resumed, the opponent will be granted a win without match.

### **Chapter 10 Objections**

(Objections to the judges)

Article 21 No objections to the decisions of the judges will be entertained.

### **Chapter 11 Specifications of robot markings**

(The East-West direction)

Article 22 The east west direction of dohyo(the match ring) is determined based on the position of the judges. The right hand side of the judges marks the east, and vice versa.

(Mark on the robot)

Article 23 The east side contestant must put red marks on the robot. The west side contestant must put blue marks in the same places.

### **Chapter 12 Others**

(Modifications and abolition of the Rules)

Article 24 Modifications or abolition of the Rules are adopted by the chairperson of the tournament through deliberation of tournament committee's regulation.

## **The Supplementary Provisions**

1. The regulation Ver2.0 was revised and into force from June 10, 1994.
2. The regulation Ver2.1 was revised and into force from June 12, 1995.
3. The regulation Ver2.2 was revised and into force from June 1, 1996.
4. The regulation Ver2.3 was revised and into force from June 20, 1997.
5. The regulation Ver2.4 was revised and into force from June 3, 1998.
6. The regulation Ver2.5 was revised and into force from June 22, 1999.
7. The regulation Ver2.7 was revised and into force from July 4, 2001.
8. The regulation Ver2.8 was revised and into force from July 4, 2002.
9. The regulation Ver2.9 was revised and into force from January 27, 2003.
10. The regulation Ver3.0 was revised and into force from June 1, 2004.
11. The regulation Ver3.1 was revised and into force from August 19, 2005.
12. The regulation Ver3.2 was revised and into force from June 1, 2006.
13. The regulation Ver3.3 was revised and into force from June 1, 2007.
14. The regulation Ver3.4 was revised and into force from June 1, 2009.
15. The regulation Ver3.5 was revised and into force from June 1, 2011.