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Allow up to 36 hours for response

## YRC1000 OPTIONS INSTRUCTIONS

FOR INDEPENDENT TYPE BRAKE RELEASE UNIT  
(HANDY TYPE: HB1371413-A)

Upon receipt of the product and prior to initial operation, read these instructions thoroughly, and retain for future reference.

### MOTOMAN INSTRUCTIONS

MOTOMAN-□□□ INSTRUCTIONS  
YRC1000 INSTRUCTIONS  
YRC1000 OPERATOR'S MANUAL (GENERAL) (SUBJECT SPECIFIC)  
YRC1000 MAINTENANCE MANUAL  
YRC1000 ALARM CODES (MAJOR ALARMS) (MINOR ALARMS)

The YRC1000 operator's manual above corresponds to specific usage. Be sure to use the appropriate manual.  
The YRC1000 operator's manual above consists of "GENERAL" and "SUBJECT SPECIFIC".  
The YRC1000 alarm codes above consists of "MAJOR ALARMS" and "MINOR ALARMS".

Please have the following information available when contacting Yaskawa Customer Support:

- System
- Primary Application
- Software Version (*Located on Programming Pendant by selecting: {Main Menu} - {System Info} - {Version}*)  
Robot Serial Number (*Located on robot data plate*)  
Robot Sales Order Number (*Located on controller data plate*)

Part Number: 182146-1CD  
Revision: 0

MANUAL NO.  
**HW1485001**



## DANGER

- This manual explains the brake release unit of the YRC1000 system. Read this manual carefully and be sure to understand its contents before handling the YRC1000. Any matter, including operation, usage, measures, and an item to use, not described in this manual must be regarded as "prohibited" or "improper".
- General information related to safety are described in "Chapter 1. Safety" of the YRC1000 INSTRUCTIONS. To ensure correct and safe operation, carefully read "Chapter 1. Safety" of the YRC1000 INSTRUCTIONS.



## CAUTION

- In some drawings in this manual, protective covers or shields are removed to show details. Make sure that all the covers or shields are installed in place before operating this product.
- YASKAWA is not responsible for incidents arising from unauthorized modification of its products. Unauthorized modification voids the product warranty.

## NOTICE

- The drawings and photos in this manual are representative examples and differences may exist between them and the delivered product.
- YASKAWA may modify this model without notice when necessary due to product improvements, modifications, or changes in specifications. If such modification is made, the manual number will also be revised.
- If your copy of the manual is damaged or lost, contact a YASKAWA representative to order a new copy. The representatives are listed on the back cover. Be sure to tell the representative the manual number listed on the front cover.

## Notes for Safe Operation

Read this manual carefully before installation, operation, maintenance, or inspection of the YRC1000.

In this manual, the Notes for Safe Operation are classified as “DANGER”, “WARNING”, “CAUTION”, or “NOTICE”.



**DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Safety Signs identified by the signal word DANGER should be used sparingly and only for those situations presenting the most serious hazards.



**WARNING**

Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury. Hazards identified by the signal word WARNING present a lesser degree of risk of injury or death than those identified by the signal word DANGER.



**CAUTION**

Indicates a hazardous situation, which if not avoided, could result in minor or moderate injury. It may also be used without the safety alert symbol as an alternative to “NOTICE”.

**NOTICE**

NOTICE is the preferred signal word to address practices not related to personal injury. The safety alert symbol should not be used with this signal word. As an alternative to “NOTICE”, the word “CAUTION” without the safety alert symbol may be used to indicate a message not related to personal injury.

Even items described as “CAUTION” may result in a serious accident in some situations.

At any rate, be sure to follow these important items.



To ensure safe and efficient operation at all times, be sure to follow all instructions, even if not designated as “DANGER”, “WARNING” and “CAUTION”.



## DANGER

- Before operating the manipulator, make sure the servo power is turned OFF by performing the following operations. When the servo power is turned OFF, the SERVO ON LED on the programming pendant is turned OFF.
  - Press the emergency stop buttons on the front door of the YRC1000, on the programming pendant, on the external control device, etc.
  - Disconnect the safety plug of the safety fence. (when in the play mode or in the remote mode)

If operation of the manipulator cannot be stopped in an emergency, personal injury and/or equipment damage may result.

*Fig. : Emergency Stop Button*



- Before releasing the emergency stop, make sure to remove the obstacle or error caused the emergency stop, if any, and then turn the servo power ON.

Failure to observe this instruction may cause unintended movement of the manipulator, which may result in personal injury.

*Fig. : Release of Emergency Stop*



- Observe the following precautions when performing a teaching operation within the manipulator's operating range:
  - Be sure to perform lockout by putting a lockout device on the safety fence when going into the area enclosed by the safety fence. In addition, the operator of the teaching operation must display the sign that the operation is being performed so that no other person closes the safety fence.
  - View the manipulator from the front whenever possible.
  - Always follow the predetermined operating procedure.
  - Always keep in mind emergency response measures against the manipulator's unexpected movement toward a person.
  - Ensure a safe place to retreat in case of emergency.

Failure to observe this instruction may cause improper or unintended movement of the manipulator, which may result in personal injury.

- Confirm that no person is present in the manipulator's operating range and that the operator is in a safe location before:
  - Turning ON the YRC1000 power
  - Moving the manipulator by using the programming pendant
  - Running the system in the check mode
  - Performing automatic operations

Personal injury may result if a person enters the manipulator's operating range during operation. Immediately press an emergency stop button whenever there is a problem. The emergency stop buttons are located on the front panel of the YRC1000 and on the right of the programming pendant.

- Read and understand the Explanation of the Warning Labels before operating the manipulator.



## WARNING

- Perform the following inspection procedures prior to conducting manipulator teaching. If there is any problem, immediately take necessary steps to solve it, such as maintenance and repair.
  - Check for a problem in manipulator movement.
  - Check for damage to insulation and sheathing of external wires.
- Always return the programming pendant to the hook on the YRC1000 cabinet after use.

If the programming pendant is left unattended on the manipulator, on a fixture, or on the floor, etc., the Enable Switch may be activated due to surface irregularities of where it is left, and the servo power may be turned ON. In addition, in case the operation of the manipulator starts, the manipulator or the tool may hit the programming pendant left unattended, which may result in personal injury and/or equipment damage.

## Definition of Terms Used Often in This Manual

The MOTOMAN is the YASKAWA industrial robot product.

The MOTOMAN usually consists of the manipulator, the controller, the programming pendant, and supply cables.

In this manual, the equipment is designated as follows.

Equipment	Manual Designation
YRC1000 Controller	YRC1000
YRC1000 Programming Pendant	Programming Pendant
Cable between the manipulator and the controller	Manipulator cable

Descriptions of the programming pendant keys, buttons, and displays are shown as follows:

Equipment		Manual Designation
Programming Pendant	Character Keys /Symbol Keys	The keys which have characters or symbols printed on them are denoted with [ ]. ex. [ENTER]
	Axis Keys /Numeric Keys	[Axis Key] and [Numeric Key] are generic names for the keys for axis operation and number input.
	Keys pressed simultaneously	When two keys are to be pressed simultaneously, the keys are shown with a "+" sign between them, ex. [SHIFT]+[COORD]
	Displays	The menu displayed in the programming pendant is denoted with { }. ex. {JOB}

## Description of the Operation Procedure

In the explanation of the operation procedure, the expression "Select •••" means that the cursor is moved to the object item and [SELECT] is pressed, or that the item is directly selected by touching the screen.

## Registered Trademark

In this manual, names of companies, corporations, or products are trademarks, registered trademarks, or brand names for each company or corporation. The indications of (R) and <sup>TM</sup> are omitted.

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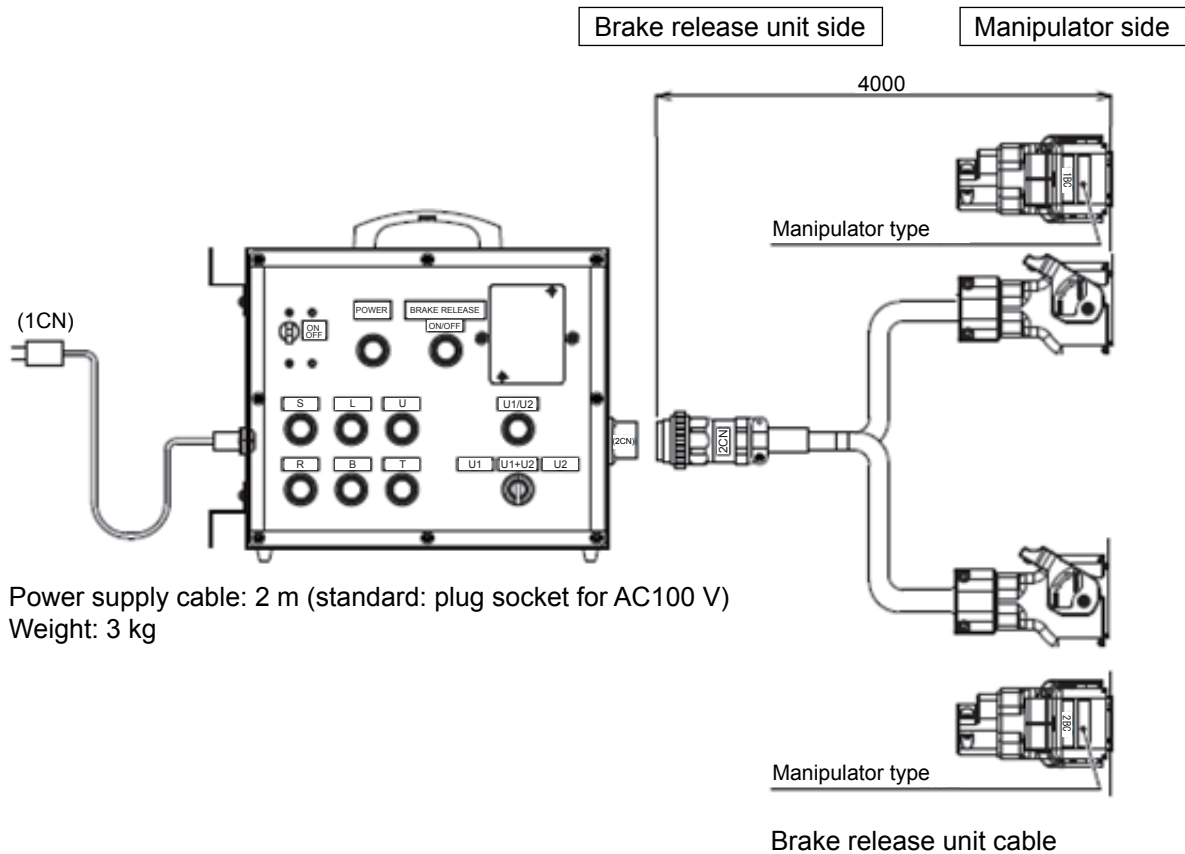
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## 1 Product Confirmation

Confirm the contents of the delivery when the product arrives.

- Brake Release Unit (refer to fig. 1-1 “Brake Release Unit (independent unit type)”) x 1
- Brake Release Unit Cable (refer to fig. 1-1) x 1

Fig. 1-1: Brake Release Unit (independent unit type)





## 2 Installation and Wiring

Only when using the brake release unit, connect it with the attachment cable for brake release unit.



### CAUTION

- Check to be sure that the main breaker of the YRC1000 is turned OFF before connecting the cable. Electric shock or equipment damage may result.
- Connect each connector firmly. Electric shock or wrong operation may result.

#### ■ Connection procedure

1. Prepare the brake release unit cable corresponding to the manipulator whose brake is to be released.  
For the correspondence of the manipulator with the brake release unit cable, refer to *table 2-1 "The correspondence table"*.
2. Confirm that the main breaker of the YRC1000 is turned OFF.
3. Remove the power supply connector (power line) on the manipulator side.
4. Connect the connector (2CN) of the brake release unit cable to the brake release unit connector (2CN).  
Before connecting the cable connector of the manipulator side to the manipulator power supply connector, check each notation on the connector and the manipulator is the same.
5. Insert the plug 1CN of the brake release unit into the socket for AC100 V (with ground terminal).

Note: This brake release unit supports the input voltage from AC 100 V to 240 V. The attached power supply cable is for AC 100 V power plug socket. When using this brake release unit at other than AC100 V, prepare the power supply cable which corresponds to the use voltage.

## 2 Installation and Wiring

Table 2-1: The correspondence table

Manipulator type	Brake release unit cable	Brake release unit
GP50 GP225 SP210 GP110 SP100 GP180 SP165 GP165R SP150R GP200R SP185R GP180-120 SP165-105 GP250 SP235 GP35L GP215 GP88 SP80 GP120 SP110 GP280 GP225H SP225H GP110H SP110H PH130RF	HS1370860	HB1371413-A
GP110B <sup>1)</sup> SP100B <sup>1)</sup>	HS1370861	
GP400 GP600 GP400R	HS1370862	
PH200RF	HS1370863	

1 For the 7th axis, the brake release is performed by the inching operation.

### 3 Operating Method



## DANGER

- Before rewiring the brake release unit cable, turn OFF the circuit protector 1CP.

Personal injury or equipment damage may result due to the wrong operation.

- Before performing brake-release operation for a manipulator, carefully read the MOTOMAN-□□□ INSTRUCTIONS of the manipulator, and securely fix the axis whose brake will be released.

When the brake is released, depending on the axis and its posture, the axis may fall down due to its own weight or may abruptly move upward due to the attached balancer or weight, which may result in personal injury and/or equipment damage.

- When releasing the brake, pay attention to surroundings.

The robot arm may move under its own weight, and personal injury or equipment damage may result.

- Release the brake of only one axis at one brake-release operation.

If the brakes of two or more axes must be released simultaneously out of necessity, pay careful attention to ensure the safety of the surrounding operation environment because the manipulator's arm may move in an unexpected way.

Failure to observe this instruction may result in personal injury and/or equipment damage.

- After the operation, be sure to turn OFF the "BRAKE RELEASE" switch and the circuit protector 1CP.

Personal injury or equipment damage may result due to the wrong operation.

1. Turn OFF the YRC1000 when using the brake release unit.
2. Remove power cable from the connector on the manipulator.
3. Connect the connector (2CN) of the brake release unit cable to the brake release unit connector (2CN).  
Confirm the letters marked on the cable and the manipulator side.  
Connect the manipulator side connector (2BC) of the brake release unit cable to the manipulator power supply connector (2BC).  
Connect the manipulator side connector (3BC) of the brake release unit cable to the manipulator power supply connector (3BC).
4. Connect the connector (1CN) of the brake release unit cable to the power plug socket for AC 100 V to AC 240 V.
5. Turn ON the "1CP" circuit protector on the brake release unit.  
Confirm the "POWER" lamp lights up.  
Press the "BRAKE RELEASE" switch.

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### 3 Operating Method

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6. Press the button of the axis whose brake to be released.  
For the S, L, U, R, B, and T button, the brake can be released while the button is pressed. When the U1 or U2 button is pressed, the brake of the axis selected with a select switch (2SS) is released for a certain period of time. Performing the brake release for two or more axes by pressing the S, L, U, R, B, T, U1, and U2 buttons simultaneously is dangerous. Be sure to release the brake of only one axis at one brake-release operation.
7. After the operation, turn OFF the circuit protector 1CP.

# YRC1000 OPTIONS INSTRUCTIONS

FOR INDEPENDENT TYPE BRAKE RELEASE UNIT  
(HANDY TYPE: HB1371413-A)

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Specifications are subject to change without notice  
for ongoing product modifications and improvements.

## YASKAWA

YASKAWA ELECTRIC CORPORATION

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