

# DX200 OPTIONS INSTRUCTIONS

FOR MANUAL BRAKE RELEASE FUNCTION

---

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

---

## MOTOMAN INSTRUCTIONS

MOTOMAN-□□□ INSTRUCTIONS  
DX200 INSTRUCTIONS  
DX200 OPERATOR'S MANUAL ( for each purpose)  
DX200 MAINTENANCE MANUAL

The DX200 operator's manual above corresponds to specific usage. Be sure to use the appropriate manual.

Part Number: 165310-1CD  
Revision: 0



## MANDATORY

- This manual explains the manual brake release function of DX200. Read this manual carefully and be sure to understand its contents before handling the DX200.
- General items related to safety are listed in the Chapter 1: Safety of the DX200 Instructions. To ensure correct and safe operation, carefully read the DX200 Instructions before reading this manual.



## CAUTION

- Some drawings in this manual are shown with the protective covers or shields removed for clarity. Be sure all covers and shields are replaced before operating this product.
- 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.
- YASKAWA is not responsible for incidents arising from unauthorized modification of its products. Unauthorized modification voids your product's warranty.

---

## Notes for Safe Operation

Read this manual carefully before installation, operation, maintenance, or inspection of the DX200.

In this manual, the Notes for Safe Operation are classified as "WARNING", "CAUTION", "MANDATORY", or "PROHIBITED".



### WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to personnel.



### CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury to personnel and damage to equipment. It may also be used to alert against unsafe practices.



### MANDATORY

Always be sure to follow explicitly the items listed under this heading.



### PROHIBITED

Must never be performed.

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 "CAUTION" and "WARNING."



## WARNING

- Before operating the manipulator, check that servo power is turned OFF when the emergency stop buttons on the front door of the DX200 and programming pendant are pressed. When the servo power is turned OFF, the SERVO ON LED on the programming pendant is turned OFF.

Injury or damage to machinery may result if the emergency stop circuit cannot stop the manipulator during an emergency. The manipulator should not be used if the emergency stop buttons do not function.

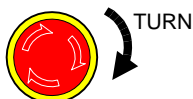
*Figure 1: Emergency Stop Button*



- Once the emergency stop button is released, clear the cell of all items which could interfere with the operation of the manipulator. Then turn the servo power ON.

Injury may result from unintentional or unexpected manipulator motion.

*Figure 2: Release of Emergency Stop*



- Observe the following precautions when performing teaching operations within P-point maximum envelope of the manipulator:
  - View the manipulator from the front whenever possible.
  - Always follow the predetermined operating procedure.
  - Ensure that you have a safe place to retreat in case of emergency.

Improper or unintended manipulator operation may result in injury.

- Confirm that no person is present in the P-point maximum envelope of the manipulator and that you are in a safe location before:
  - Turning ON the DX200 power.
  - Moving the manipulator with the programming pendant.
  - Running the system in the check mode.
  - Performing automatic operations.
- Injury may result if anyone enters the P-point maximum envelope of the manipulator during operation. Always press an emergency stop button immediately if there is a problem. The emergency stop buttons are located on the right of the front door of the DX200 and the programming pendant.



## CAUTION

- Perform the following inspection procedures prior to conducting manipulator teaching. If problems are found, repair them immediately, and be sure that all other necessary processing has been performed.
  - Check for problems in manipulator movement.
  - Check for damage to insulation and sheathing of external wires.
- Always return the programming pendant to the hook on the DX200 cabinet after use.

The programming pendant can be damaged if it is left in the manipulator's work area, on the floor, or near fixtures.

- Read and understand the Explanation of the Warning Labels in the DX200 Instructions before operating the manipulator.

## 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
DX200 Controller	DX200
DX200 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 its symbol 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 the SELECT key 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.

## Table of Contents

---

1	Manual Brake Release Function.....	1-1
1.1	Operating Conditions of Manual Brake Release.....	1-1
2	Manual Brake Release Operation.....	2-1
3	Warning Message Display .....	3-1

## 1 Manual Brake Release Function

The manual brake release function allows forcible release of each motor brakes of the manipulator and external axes by programming pendant operation.

The following operating conditions have to be met before performing the manual brake release function since this function releases brakes by software, which is different from the conventional brake release by hardware.

The manual brake release is an optional function set by parameter.

### 1.1 Operating Conditions of Manual Brake Release

1. DX200 Status  
The DX200 has to be launched correctly<sup>1)</sup>.
2. Mode: Mode switch on the programming pendant  
The function can be used in all modes: Remote / Play / Teach.
3. Security Mode  
The function can be used in all modes: Operation / Editing / Management.
4. Others
  - Servo power is OFF
  - Emergency stop is OFF  
(programming pendant, DX200, external signals)

Fig. 1-1: Alarm Window



- 1 Basically, the manual brake release function is available even at alarm occurrence.  
However, the manual brake release function cannot be used if the communication failure between each boards (YCP21, EAXA21, YIF21, YSF21, YSF22) occurs due to board failure, etc.

<Example>

The manual brake release cannot be performed at occurrence of the alarm 0060 as shown in *Figure 1-1*, since the communication with the board YSF21 becomes unavailable.

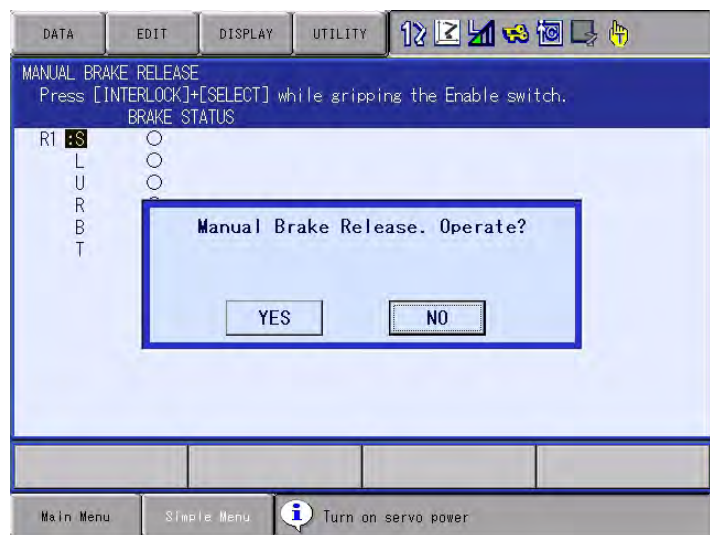


## 2 Manual Brake Release Operation

1. Select [ROBOT] under the main menu, then select [MANUAL BRAKE RELEASE] under the submenu.
  - [MANUAL BRAKE RELEASE] is shown under the submenu of the main menu [ROBOT].



2. Select "YES".
  - To avoid careless operation mistake, a warning message appears when [MANUAL BRAKE RELEASE] menu is selected.
  - Select "YES" to display [MANUAL BRAKE RELEASE] window.
  - Select "NO" to return to the main menu.



3. Move a cursor to the axis of which the brake is to be released.
  - The brake is released by following the operation: Move a cursor to the axis of which the brake is to be released and press [INTERLOCK] + [SELECT] while gripping Enable switch. Then the brake status is shown.
  - The brake is locked under one of the following conditions:
    - When [SELECT] is released.
    - When the emergency stop button on the programming pendant, DX200 or external device is pressed.
    - When Enable switch is released or gripped further.
    - When the window is switched from the Manual Brake Release window to another window.


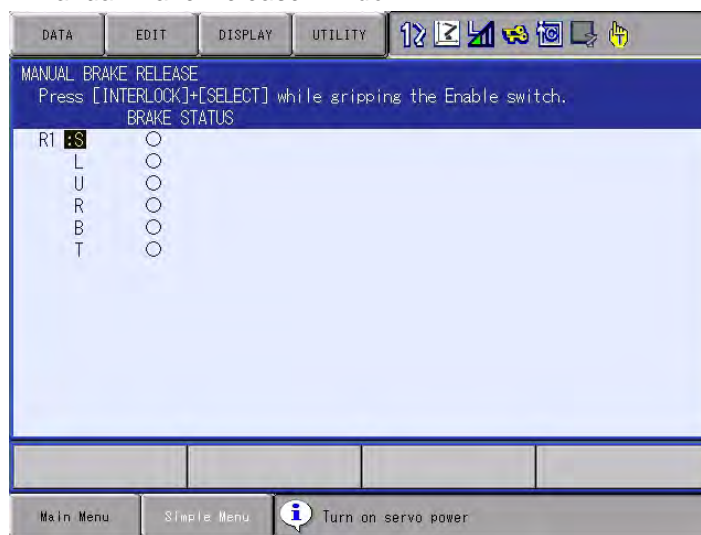
Also, see the following  CAUTION

Fig. 2-1: Manual Brake Release Window



Brake Status: ○: Brake locked ●: Brake released

4. Press [INTERLOCK] + [SELECT] while gripping Enable switch.



## CAUTION

- Brake can be released by pressing [INTERLOCK] + [SELECT] while gripping Enable switch. Note that the brake remains released even though [INTERLOCK] is released at this time.

### 3 Warning Message Display

If the manual brake release is performed under the following conditions, the warning message appears in the message area bottom right of the window.

In this case, the brake release cannot be performed.

- Servo power is turned ON.
- Emergency stop button on the programming pendant is pressed.
- Emergency stop button on DX200 is pressed.
- External emergency stop signal is input.

# DX200 OPTIONS INSTRUCTIONS

## FOR MANUAL BRAKE RELEASE FUNCTION

---

### HEAD OFFICE

2-1 Kurosakishiroishi, Yahatanishi-ku, Kitakyushu 806-0004, Japan  
Phone +81-93-645-7745 Fax +81-93-645-7746

YASKAWA America Inc. M Robotics Division  
100 Automation Way, Miamisburg, OH 45342, U.S.A.  
Phone +1-937-847-6200 Fax +1-937-847-6277

YASKAWA Nordic AB  
Box 504 Verkstadsgatan 2, PO Box 504 SE-385 25 Torsås, Sweden  
Phone +46-480-417-800 Fax +46-486-414-10

YASKAWA Europe GmbH Robotics Div.  
Yaskawastrasse 1, 85391 Allershausen, Germany  
Phone +49-8166-90-0 Fax +49-8166-90-103

YASKAWA Electric Korea Co., Ltd  
9F, KYOBO Securities Bldg., 26-4, Yeoido-Dong Yeounggeungpo-ku, Seoul, Korea  
Phone +82-2-784-7844 Fax +82-2-784-8495

YASKAWA Electric (Singapore) PTE Ltd.  
151 Lorong Chuan, #04-02A, New Tech Park, Singapore 556741  
Phone +65-6282-3003 Fax +65-6289-3003

YASKAWA Electric (Thailand) Co., Ltd.  
252/246, 4th Floor. Muang Thai-Phatra Office Tower II Rachadaphisek Road,  
Huaykwang Bangkok, 10320, Thailand  
Phone +66-2-693-2200 Fax +66-2-693-4200

YASKAWA Shougang Robot Co. Ltd.  
1015, Boxuenan Rd. Maluzhen, Jiading District, Shanghai, China  
Phone +86-21-5950-3521 Fax +86-20-3878-0651

YASKAWA ELECTRIC CHINA Co., Ltd.  
12F Carlton Building, No. 21-42 Huanghe Road, Shanghai 200003, China  
Phone +86-21-5385-2200 Fax +86-21-5385-3299

YASKAWA Robotics India Ltd.  
#426, Udyog Vihar, Phase- IV, Gurgaon, Haryana, India  
Phone +91-124-475-8500 Fax +91-124-475-8542

---

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