

Jog Controller

JC-01

Instruction manual



This time thank you for having you purchase a Jog controller.

■ About this instruction manual

This instruction manual describes the correct usage and functions of the equipment and notes on use. Please read carefully before use to ensure proper operation. Also, keep this manual in a handy place for when you do not understand when using it.

The content of the instruction manual has been prepared with all possible measures. If there are any suspicious points, errors or omissions, please contact us or your distributor.

* Reprinting and copying of the instruction manual requires our consent.

* The contents of the instruction manual and product specifications are subject to change without notice.

■ Warranty

If a failure occurs due to our manufacturing or delivery within one year from the date of purchase, we will repair it free of charge.

However, in the following cases, repair will be charged even if it is within one year of purchase.

1. If there is a failure or damage due to usage or carelessness different from what is described in the instruction manual
2. If there is a malfunction or damage due to improper modification, adjustment or repair
3. If there is a failure or damage due to natural disaster, fire, or other external factors

■ Repair

We will repair it. If you suspect a malfunction or damage, please contact us or your distributor. When transporting this equipment to us, pack it carefully so that it will not be damaged during transportation, and write down the occurrence, failure or damage. In addition, we cannot guarantee about malfunction and damage caused by transportation.

■ Contact

Tokyo Head Office	TEL	+81-3-5638-6551
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Kyushu Sales Office	TEL	+81-92-481-4300

■ Precautions for use

Please read this instruction manual carefully before use to ensure correct use. Then save it carefully and read it when necessary.

- This device is used to operate the following Yaskawa stage controller at hand. Do not use for any other purpose.




Model				
FC-411	FC-414	FC-511	FC-514	FC-611
FC-911				

- This instrument is a precision instrument. Please handle with care.
- Make sure that there is no impact or excessive force on the equipment.
- Maintain the installation environment described in this instruction manual.
- If the equipment is used in a manner not specified in this manual, the protection functions of the equipment may be impaired. The Company is not liable for any damages arising from use that violates this precaution.
- Fire caused by this equipment, damage caused by extinguishing agents, earthquakes, flooding, lightning strikes, other accidents, intentional or negligence of customers and third parties, use other than the intended use of the product, use in environments other than specifications The Company is not liable for any damages.
- The Company assumes no responsibility whatsoever for any damage to human life or property caused by a failure or malfunction caused by connecting this equipment to equipment or equipment other than our stage controller.
- No warranty other than those described in this instruction manual.




■ Safety Please be sure to observe

Explains what you must observe to prevent harm to people and others, and damage to property.








- The degree of harm or damage caused by improper use is classified and explained in the following display.

 DANGER	The column of this display is "It is assumed that the risk of death or seriousness is imminent."
 WARNING	The column of this display is the content "It is assumed that there is a possibility of death or serious injury" .
 CAUTION	The column of this display is the content "It is assumed that there is a possibility of causing damage or physical damage only" .

- The types of content to be protected are categorized and explained by the following indications.

	Indicates "forced" content that must be executed.
	Indicates "prohibited" contents that must not be executed.
	Indicates the "Caution" that you should be aware of. Also displayed on the equipment.

- Explains what you should follow.

 WARNING	
	Do not use in an explosive atmosphere. Never use it in a place where flammable or explosive gas or vapor is present because it may cause an explosion or fire.
	Do not place in a corrosive atmosphere. Doing so may cause corrosion of the conductor or poor contact of the connector, which may cause malfunction or failure, resulting in a fire.
	Do not use the product in a broken or damaged state. There is a risk of electric shock, smoke, or fire. Unplug the power cable from the outlet.
	Do not use the product where it will be exposed to water. It may cause an electric shock or malfunction.
	Do not open the cover. It may cause an electric shock or malfunction.
	Do not connect other than our stage controller described in this instruction manual. Doing so may cause a failure of this instrument and connected equipment.

■ Precautions for install


The following are precautions for installing this equipment. Please be sure to observe.

- Avoid places where the temperature and humidity are high, where the product is exposed to direct sunlight, or where the temperature changes rapidly.
- Do not install it in a place where it will be exposed to water.
- Ensure that the ambient temperature of this equipment does not exceed 40 °C .
- Do not use the product in a place where there is a strong magnetic field or electric field, or where there is a lot of distortion or noise in the input power supply waveform.

■ Cleaning

If it gets dirty, use a soft cloth with a mild detergent diluted with water and wipe gently.

 WARNING	When cleaning, be sure to remove it from the stage controller.
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 CAUTION	Use only neutral detergent diluted with water. Discoloration and roughness of the painted surface, fading of printed characters, and cloudiness of the acrylic board may occur.
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1. Overview

This equipment is used to operate our stage controller at hand. By pressing each button, stage operation, teaching operation, emergency stop, mode switching, and sleep execution can be performed. The controllers that can be connected are shown below.

Model				
FC-411	FC-414	FC-511	FC-514	FC-611
FC-911				

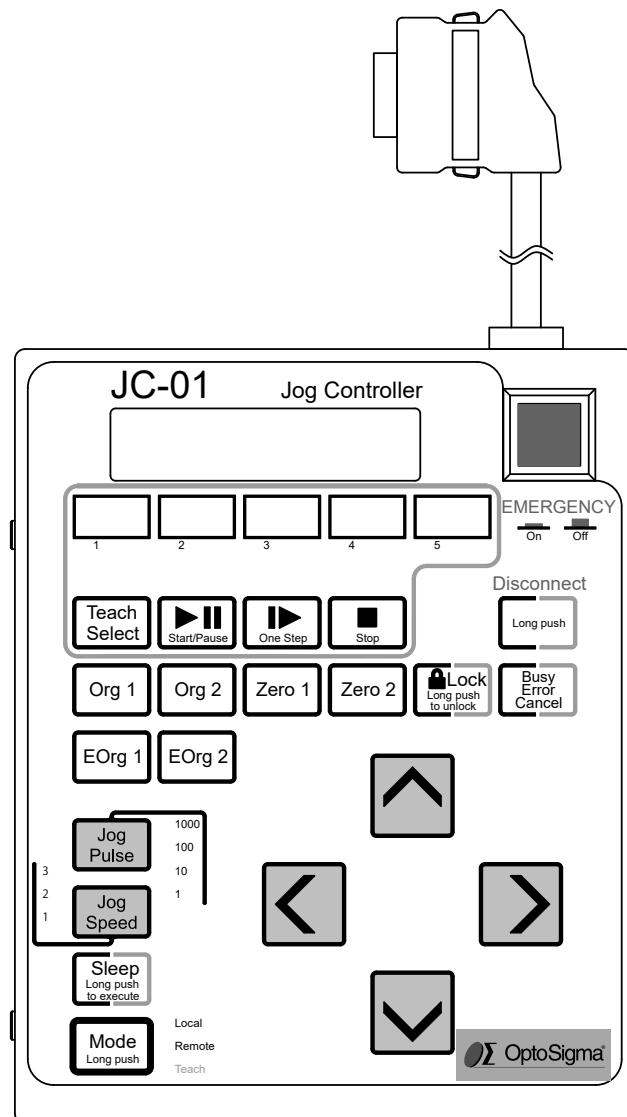
2. Package Contents

Purchasers should find that the package contains the items listed below. If anything is missing or damaged, contact us or your distributor.

Name	Model or specification	Quantity	Remarks
Jog Controller	JC-01	1	
Instruction manual	-	1	This book

3. Part names and functions

3-1. Panel

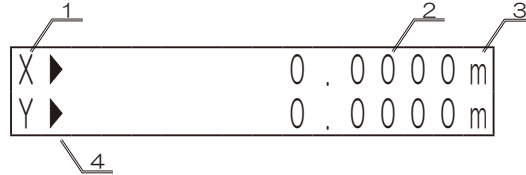


(1) Display unit

JC-01 Jog Controller



The display shows the positioning status, axis name, coordinate value, unit, and error. The error is displayed on the axis where the error has occurred, and all the errors that have occurred are displayed at regular intervals. For the positioning status, axis names, units, and errors, see the instruction manual for the stage controller.



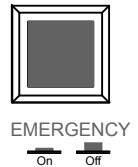
• Display contents

No	Item	Contents																		
1	Axis name	The upper side is the first axis side (X), and the lower side is the second axis side (Y). Depends on the stage controller setting.																		
2	Coordinate value	The upper side is the first axis side, and the lower side is the second axis side. Depends on the stage controller setting.																		
3	Unit	The upper side is the first axis side, and the lower side is the second axis side. Depends on the stage controller setting. <ul style="list-style-type: none"> • For nanometers, it is "n". • For micrometer, it is "u". • For millimeters, it is "m". • In the case of degrees, it is "°". • When there is no display, the display is such that the smallest digit of the coordinate value is the digit of the resolution of the connected stage controller. For details, see the instruction manual for the stage controller. 																		
4	Positioning status	<table border="1"> <tr> <td>▶</td> <td>READY</td> <td>Positioning is completed and stays within the in-position range.</td> </tr> <tr> <td>▷</td> <td>READY</td> <td>It is out of the in-position range after positioning is completed.</td> </tr> <tr> <td>></td> <td>BUSY</td> <td>The positioning operation is in progress.</td> </tr> <tr> <td>+</td> <td>BUSY</td> <td>It is operating in the plus direction during Jog key operation.</td> </tr> <tr> <td>-</td> <td>BUSY</td> <td>Operating in the minus direction during Jog key operation.</td> </tr> <tr> <td>no display</td> <td>BUSY</td> <td>Command operation (other than Jog key operation) or error is occurring.</td> </tr> </table>	▶	READY	Positioning is completed and stays within the in-position range.	▷	READY	It is out of the in-position range after positioning is completed.	>	BUSY	The positioning operation is in progress.	+	BUSY	It is operating in the plus direction during Jog key operation.	-	BUSY	Operating in the minus direction during Jog key operation.	no display	BUSY	Command operation (other than Jog key operation) or error is occurring.
▶	READY	Positioning is completed and stays within the in-position range.																		
▷	READY	It is out of the in-position range after positioning is completed.																		
>	BUSY	The positioning operation is in progress.																		
+	BUSY	It is operating in the plus direction during Jog key operation.																		
-	BUSY	Operating in the minus direction during Jog key operation.																		
no display	BUSY	Command operation (other than Jog key operation) or error is occurring.																		

The keys that can be used depending on the positioning status, errors and modes are shown below.

Error Positioning status	Mode	
	Local, Remote	Teach
▶ ▷	Disconnect 	Disconnect
>		
+ - None	-	-
Limit error Emergency stop Overflow error		
Other error	-	-

(2) EMERGENCY switch (Local, Remote, Teach)



Emergency stop switch. Used to stop the stage operation urgently. Can be used in all modes. When the power is supplied to the instrument, pressing the switch locks the instrument to the On side, turns on the lamp in the button, and causes an emergency stop. To cancel, press the switch again to turn it off, and press the Busy Error Cancel key. The EMERGENCY switch can be used even if power is not supplied to this instrument as long as it is connected to our stage controller. In this case, the lamp does not turn on even if the switch is pressed to the On side and an emergency stop is performed. To release from this state, perform the above release operation after reconnecting this equipment and supplying power, or cancel the busy error from the stage controller. For details, see the instruction manual for the stage controller.

(3) Mode key (Local, Remote, Teach)



The mode switches each time the mode of the stage controller is pressed and held. The keys that can be used in each mode are different. See "Display" for details.

(4) Org1, Org2 key (Local, Remote)



Return the stage to the mechanical origin. Org1 is the first axis and Org2 is the second axis. During execution, the green lamp lights. One axis can be executed while the other axis is being executed. Press again during execution to stop the stage. The mechanical origin mode and operation speed depend on the setting of the stage controller. For details, see the instruction manual for the stage controller.

(5) EOrg1, EOrg2 key (Local, Remote)



Return the stage to the coordinate zero position (electric home return). EOrg1 is the first axis and EOrg2 is the second axis. The green lamp lights during execution. One axis can be executed while the other axis is being executed. Press again during execution to stop the stage. The operating speed depends on the setting of the stage controller. For details, see the instruction manual for the stage controller.

(6) Zero1, Zero2 key (Local, Remote)

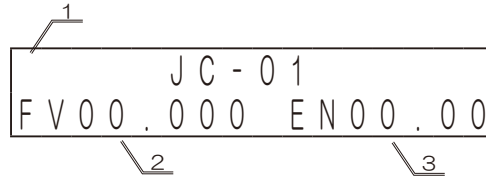


Set the coordinate value to zero (electric origin setting). Zero1 is the first axis side, and Zero2 is the second axis side.

(7) Lock key (Local, Remote, Teach)



Disables key operations other than the EMERGENCY button and this key. During execution, the red lamp lights. If this key is pressed once (single click) during execution, information such as the model name of this equipment is displayed. Press and hold to cancel.



No	Item	Contents
1	Model name	Model
2	FV	Firmware Version
3	EN	Equipment Number

(8) Busy Error Cancel key (Local, Remote, Teach)



Executes the positioning status (BUSY) and error cancellation (busy error cancellation). The forced completion of positioning during positioning operation and the error that occurred can be canceled. See the table below for errors that can be canceled. To release the emergency stop, set the EMERGENCY switch to Off before executing.

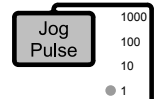
Cancelable error		
Limit error	Emergency stop	Overflow error

(9) Sleep key (Local, Remote, Teach)



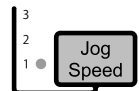
Executes sleep between this equipment and the stage controller. Press and hold when positioning is completed, no error has occurred, and teaching execution has been completed. During execution, the green lamp lights. During operation, this equipment cannot operate any key other than the Sleep key. Press it again to return. The EMERGENCY button can be operated during execution, but it will not enter the emergency stop state until returning from sleep.

(10) Jog Pulse key (Local, Remote)



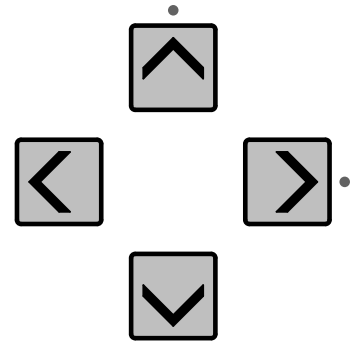
Select the command pulse amount when the Jog key is pressed once (single click). It is 1 at startup and switches each time it is pressed. The lamp flashes during operation. Press this key again to stop. The operating speed depends on the setting of the stage controller. For details, see the instruction manual for the stage controller.

(11) Jog Speed key (Local, Remote)



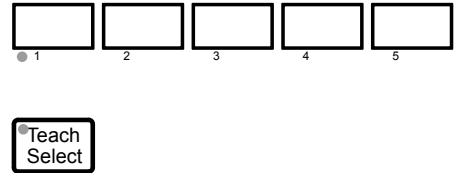
Select the speed step when the Jog key is held down. It is 1 at startup and switches each time it is pressed. The operating speed of each speed step depends on the setting of the stage controller. For details, see the instruction manual for the stage controller.

(12) Jog key (Local, Remote)



Move the stage to any position. There are two types of operation: specified pulse amount operation (Jog key once press) and continuous operation (Jog key long press). The pulse amount for the specified pulse amount operation can be set with the Jog Pulse key. The speed during continuous operation can be set with the Jog Speed key. When entering the stage limit sensor, the red lamp of the target axis blinks. Each axis can be operated simultaneously (2 directions). The operation direction of the stage with respect to the key depends on the setting of the connected stage controller. For details, see the instruction manual for the stage controller.

(13) Teach Select key (Teach, Remote)



Select a teaching channel. It switches each time it is pressed. The green lamp inside this key lights up for the channel where the teaching contents are registered. If the lamps of all channel numbers are blinking, the contents of teaching are being registered, so the Teach Select key, Start / Pause key, One Step key, Stop key, and Mode key cannot be used. Use the frame above the channel number as a memo area.

(14) Start/Pause key (Teach)



Starts and pauses teaching. When pressed during execution, pauses without executing the next operation after the operation currently being executed. Press again to resume execution. The method of lighting the green lamp according to the execution status is shown below.

State	Lamp
Running	Lighting
Paused	Flashing
One step running, stopped	Off

(15) One Step key (Teach)



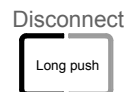
Execute the teaching contents one step (one line at a time). The green lamp flashes during execution. It can be used during pause and stop. If pressed during pause, one-step execution will return to pause. If it is pressed while stopped, one step is executed from the first line of the teaching content and paused.

(16) Stop key (Teach)



Stop the execution of teaching. This turns off the Start / Pause key or One Step key lamp.

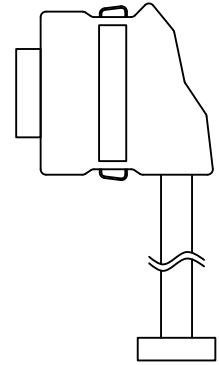
(17) Disconnect key (Local, Remote, Teach)



Shut off the power supply of this equipment. It can be used only when positioning has been completed or the stage has stopped due to an error. When removing this instrument from the stage controller, be sure to perform this operation before removing it. To supply power again, reconnect the connection cable described in the next section or perform power supply operation from the stage controller. In addition, the power supply of this equipment can be cut off from the stage controller. For details, see the instruction manual for the stage controller.

3-2.Cable

(1)Connection cable



Cable with connector for connecting to stage controller. It cannot be removed from this equipment. It can be connected even when the power to the stage controller is on. However, when removing this equipment from the stage controller, be sure to operate the Disconnect key before disconnecting, or shut off the power supply from the stage controller. For details, see the instruction manual for the stage controller.



CAUTION Do not connect other than our stage controller. Failure to do so may cause damage to this equipment and connected equipment.

4. Specification

These are the specifications for this equipment.

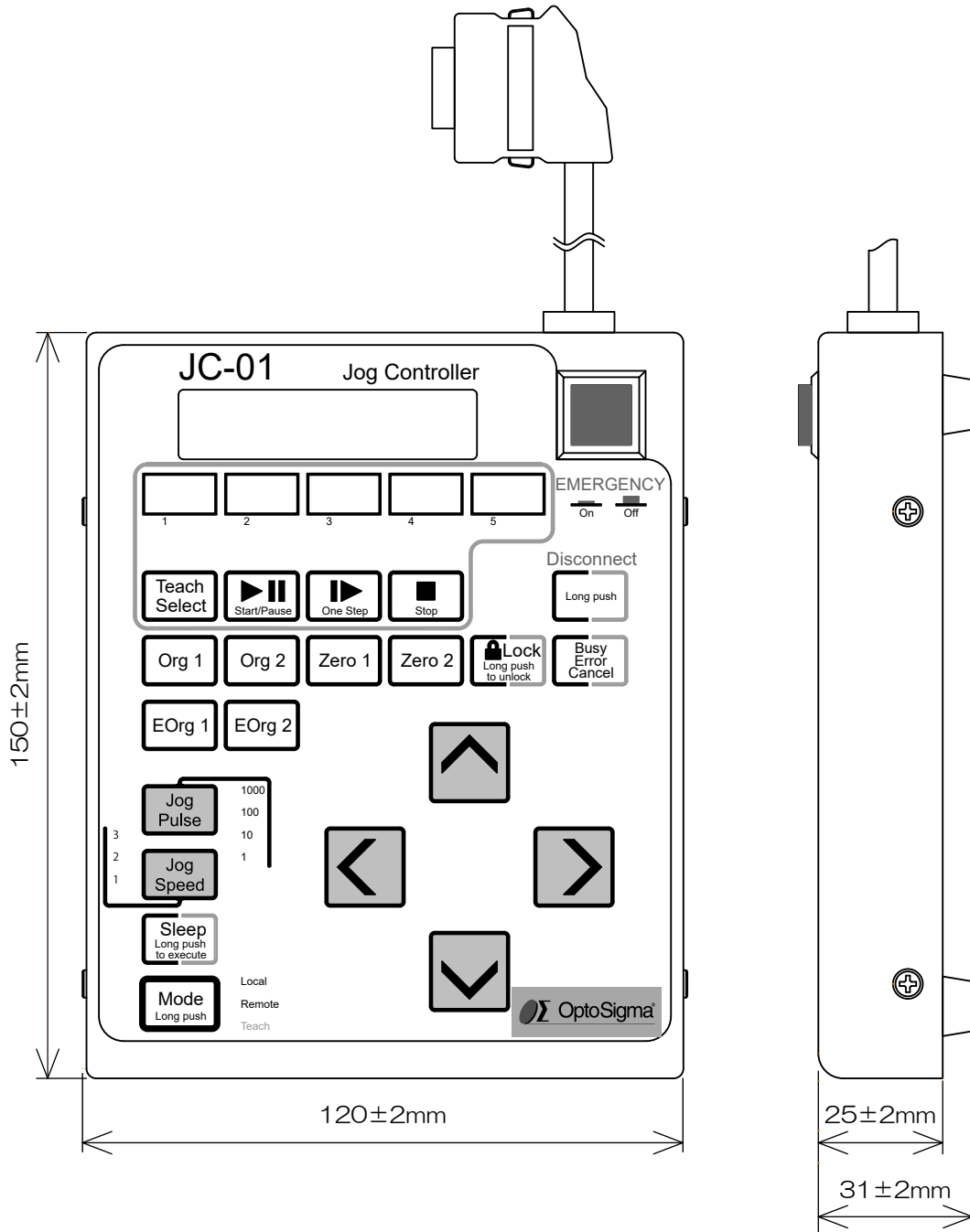
4-1. Basic specifications

Item	Contents
Number of connectable stage controllers	1
Number of control axes	2
Stage movement related	Cross JOG operation
	JOG speed switching
	JOG command pulse amount switching
	Mechanical origin return
	Electric home return
	Coordinate value zero set
Teaching	Busy error cancel
	Teaching channel selection
	Moving start
	Pause
	One step
Other	Stop
	mode change
	Sleep
	Key operation invalid
	Power supply cutoff
	Emergency stop

4-2. General specifications

Item	Contents
Power supply	DC5V
External dimensions	W120 × H31 × D150mm (Including rubber feet)
Connection cable length	2m
Weight	0.8kg
Operating temperature	0°C ~ 40°C
Operating ambient humidity	20% ~ 80%RH (No condensation)
Storage temperature	-10°C ~ 55°C
Ambient storage humidity	20% ~ 80%RH (No condensation)
Place of use	indoor
Storage altitude	up to 2000m
Operating altitude	up to 2000m

5. Dimensions



6. Trouble shooting

If a problem occurs, check the following. If the remedy does not improve the problem, the instrument or stage controller may be faulty. Unplug the power plug of the stage controller from the outlet and contact our company or our distributor.

Contents	Possible cause	Workaround	Page
"Communication Error Disconnected" is displayed.	Connection authentication failed.	After turning off the power supply from the stage controller, perform the power supply operation from the stage controller, or disconnect and reconnect the connection cable.	5
Cannot operate.	Not connected to stage controller.	Connect to the stage controller.	5
	Power supply is shut off.	Operate the power supply from the stage controller. Or disconnect and reconnect the connection cable.	5
	The mode is not correct.	Change to the mode you want to use.	3
	Lock key is pressed.	Release the Lock key.	3
	This equipment is sleeping.	Please return from sleep mode.	4
	EMERGENCY switch is pressed.	After turning off the EMERGENCY switch, press the Busy Error Cancel key.	4
	The positioning status of the display unit is "No display" or ">".	During command operation or positioning operation. Please wait as it is. If the status of ">" continues, the positioning complete status can be forcibly changed to "▶" or "▷" with the Busy Error Cancel key.	2, 4
An error has occurred.	Please clear the error.	4	

7. Update history

Edition	Document control number	Revision date	Supported FV	Supported EN
1	MJ-1026-01.01	-	01.000 ~	01.00 ~

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Memo

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