

YRC1000 OPERATOR'S MANUAL

FOR MAINTENANCE MODE

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: 178938-1CD

Revision: 1

MANUAL NO.

HC1400033 

1/142



DANGER

- This manual explains maintenance mode (a setup, maintenance, etc.) 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 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}

How to Use [SELECT], [ENTER], and [CANCEL] in Maintenance Mode

With regard to the maintenance mode, follow the instructions below basically.

- [SELECT] → Used to select the target of the operation.
- [ENTER] → Used to determine the content of the screen.
- [CANCEL] → Decided to cancel the contents of the screen, use one to return to the previous screen.

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 TM are omitted.

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1 Maintenance Mode Outline



WARNING

- Various settings control system compatibility and manipulator performance characteristics. Exercise caution when changing settings that can result in improper manipulator operation.

Personal injury and/or equipment damage may result if incorrect settings are applied by the user.

- An operator must be familiar with the maintenance mode. Or carry out the operation under the supervision of the person who is familiar with such operation.

NOTICE

- When creating or modifying data, save and manage data as needed.
- Prepare SD card or USB memory for YRC1000.

When YRC1000 (a control device for YASKAWA MOTOMAN) is initially shipped, the CMOS data need to be initialized. The CMOS data are those on the RAM whose battery inside the robot I/F Unit is backed up, and those on the SD card in ACP01.

In addition, the following functions are prepared as those required for maintenance.

- Modification of the CMOS data
- Displaying the system version
- Initializing file
- Saving/Loading CMOS data
- Saving Controller information

Maintenance can be performed efficiently using these features.

1 Maintenance Mode Outline
 1.1 Motion Mode

1.1 Motion Mode

The following mode are available for YRC1000.

*This manual explains the maintenance mode of the YRC1000 system.

Select the operation mode by changing the position of the rotary switch located on the robot I/F board (AIF01-□E board).

Activate power after position changing.

Rotary switch	Operation mode
0	Normal mode
1	Prohibited to select
2	Mandatory maintenance mode
3	ROM transfer mode
4	servo Communications WDG invalid
5	Upgrade mode
6	Dummy servo
7	Maintenance mode

Rotary switch '8' to 'F': This is for debug (selection not allowed). It cannot start unless the programming pendant is connected.

*Turn ON the power supply again while pressing programming pendant [Main Menu] simultaneously. Allows to start the maintenance mode. (Refer to the next page or thereafter.)

- Normal mode
 This mode is used when robot system software to operate normally. After changing the rotary switch, make sure to turn it back to "0".
- Mandatory maintenance mode
 In this mode, the maintenance mode is started without depending on the parameter or the stored values of the SRAM memory. This is the same situation as that of the SRAM memory of the AIF01 board is cleared.
- ROM transfer mode
 Each execution file is transferred to the Flash Rom of each board. After transferring, it is started in the normal mode (the same mode as the rotary switch "0").

SDCA01AA board Servo software

ASF01 board Machine safety software, Functional safety software

- Upgrade mode
 This mode is used when writing (upgrade) the software for each board.
- Dummy servo
 In this mode, carry out function tests without connecting the manipulator to the control panel.
- Maintenance mode
 This mode is used for setup and maintenance robot system.

- 1 Maintenance Mode Outline
- 1.2 Starting Method of Maintenance Mode

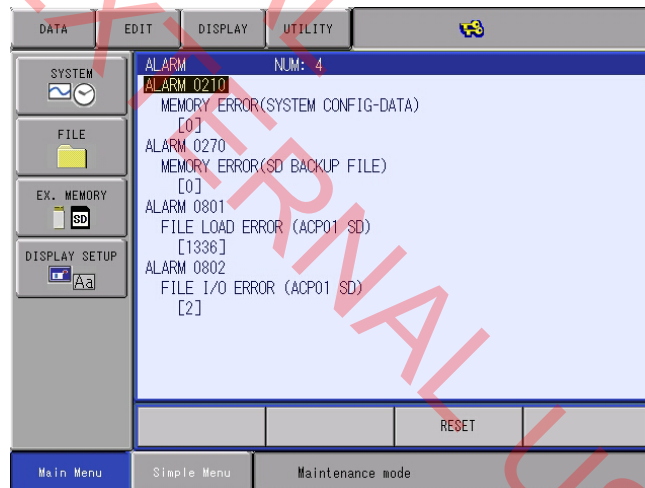
1.2 Starting Method of Maintenance Mode

This mode is used for setup and maintenance robot system.

1. Turn ON the power while pressing [Main Menu] simultaneously.
 - If the power is turned ON while pressing [Main Menu] simultaneously, the maintenance mode starts up.



However, if the system is never initialized in maintenance mode, the following window appears.



1 Maintenance Mode Outline
 1.2 Starting Method of Maintenance Mode

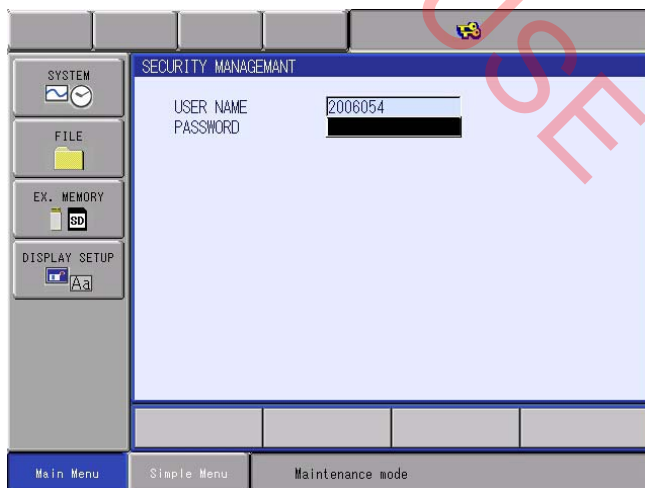
2. Select {SYSTEM} under the main menu.
 – {SETUP}, {VERSION}, and {SECURITY} appears.



3. Select {SECURITY}.
 – The selection window of security mode appears, and then mount the device which is saved the license file for YASKAWA MODE to the programming pendant.



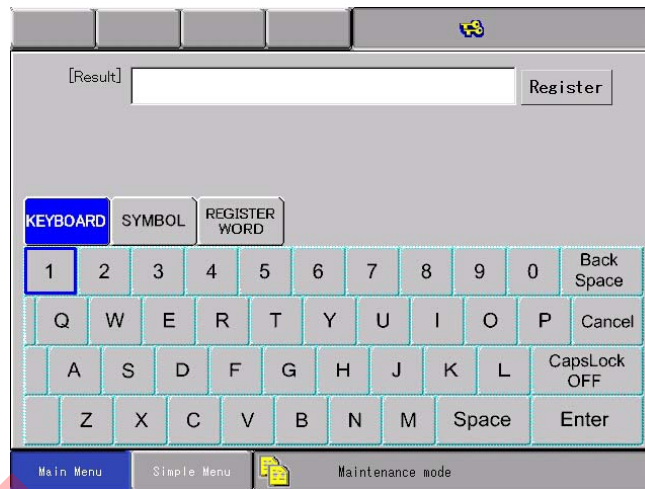
4. Press [INTERLOCK + SELECT].
 – Login window for the YASKAWA MODE appears.



- 1 Maintenance Mode Outline
- 1.2 Starting Method of Maintenance Mode

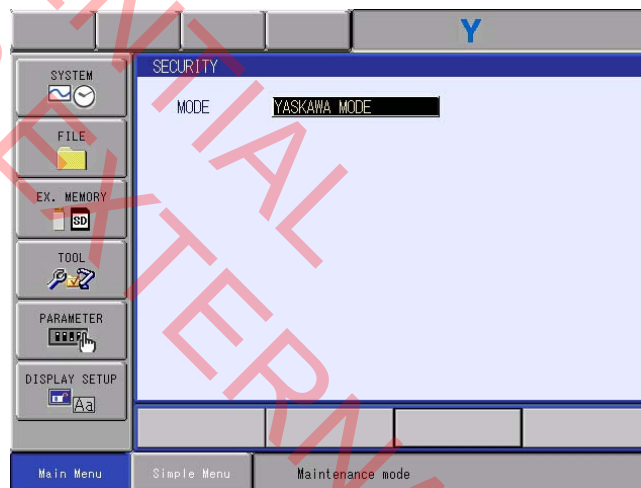
5. Press [SELECT].

- Password input window appears.



6. Press the [ENTER] after the password of YASKAWA MODE.





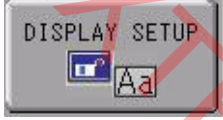

- When the password is entered correctly, the system transit to YASKAWA MODE.



*When the password for the MANAGEMENT MODE is entered, the system transit to MANAGEMENT MODE. IN MANAGEMENT MODE, the function only for manufacturers will not be able to view or change.

1 Maintenance Mode Outline
 1.2 Starting Method of Maintenance Mode

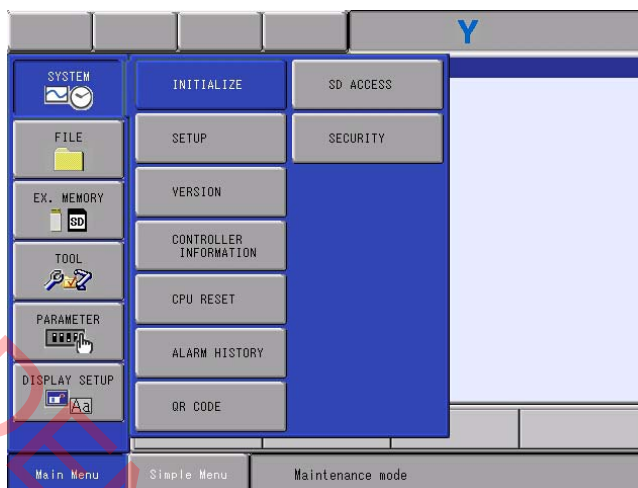
By selecting the icon displayed in the main menu, various operations can be performed.

Icon	Description
	System initialization, configuration, version check, set the security mode, can be performed.
	Various files (JOB, FILE/GENERAL DATA, PARAMETER, I/O DATA, SYSTEM DATA) can be initialized.
	Loading/saving of the CMOS data using a SD card or a USB memory, the system recovery, and selection of devices/ folders are available.
	Language can be built.
	Change of fonts and button sizes, and initialization of layouts can be performed.
	Parameter setting can be performed. However, referring to and changing the parameters can be available only in YASKAWA MODE.

2 System Menu

If {SYSTEM} is selected in the main menu, initialization/configuration of the system, the version display, and the security mode setting can be performed.

Set the security mode to YASKAWA MODE in advance.



① INITIALIZE

The system parameters are automatically set and all files are initialized.

Configuration data is stored in CMOS memory.

When YRC1000 is started for the first time, perform initialization first.

② SETUP

Perform the system parameter setup (change).

The system parameters are then set automatically as well as initializing.

In the following cases, the change of the system configuration is required.

- At the time of the addition of an external axes
- At the time of the change of the application (at present, only checking possible)
- At the time of the addition of an IO module
- At the time of the addition of a sensor board

③ VERSION

Display the software version.

④ Alarm

Displays the alarm.

⑤ Alarm History

Displays the alarm history.

⑥ DATA REBUILD

This is displayed when the data stored in SD Card (SD Card in ACP01 board) before and after the upgrade are not compatible.

⑦ SD access

Displays how many times the SD card mounted to the ACP01 board of the YRC1000 is written.

⑧ SECURITY

Change the security mode.

CONFIDENTIAL
NOT FOR EXTERNAL USE

2 System Menu
 2.1 Initialize

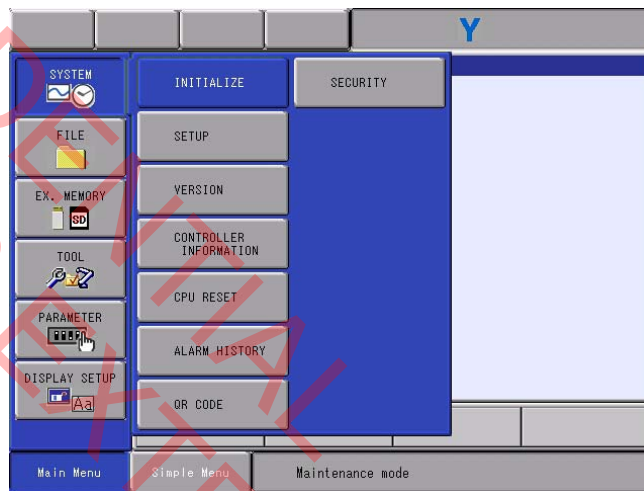
2.1 Initialize

Initialize the system.

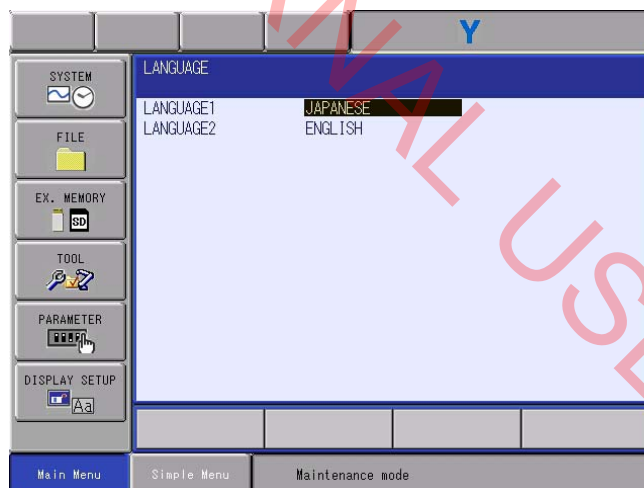
NOTE Place an optional board and an I/O module in advance while power is disconnected before the initialization.

First, set a language, and from then move to the fields to be set automatically.

1. Select {SYSTEM} under the main menu.
 - {INITIALIZE}, {SETUP}, {VERSION}, and {SECURITY} appears.



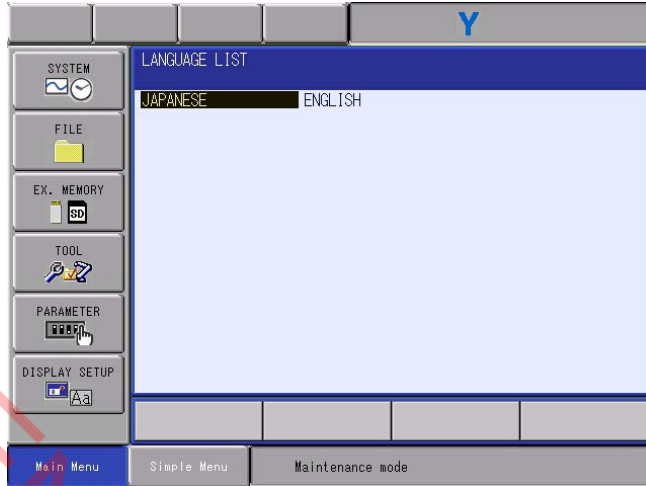
2. Select {INITIALIZE}.
 - The LANGUAGE window appears.



2.1.1 Language

First, set a first language and a second language.

1. Choose a Language to change in LANGUAGE window.
 - The LANGUAGE LIST window appears.



2. Choose a Language to setup.
 - After a language is selected, the LANGUAGE window appears again.
3. Press [ENTER].
 - The CONTROL GROUP window appears.

2 System Menu
2.1 Initialize

2.1.2 Control Group

Immediately after the language setting, execute the setting of control groups.

Execute various settings on each of the control groups of the robot, the base and the station. Set the following items:

●TYPE

Select one in the type list.

In case of robot

The type is changed only in the YASKAWA MODE.

Select one in the displayed type list.

In case of base axes (B1 to B8)

Select one in the displayed type list.

In case of station axes (S1 to S24)

Select one in the displayed type list.

●CONNECTION

For the YRC1000, the standard system is STO (Safety Torque OFF), and the optional system uses the contactor system, so select the CONNECT window which matches to the system configuration.

<CONNECT window for STO systems>

On the CONNECT window of the STO system, set the following: a servo board to which the control group is to be connected; the number of an axis which is to be connected to the connector of the servo board; the number of a brake which is to be connected to the brake board connector; a converter to which the axis is to be connected; settings to connect the STO and ON_ENABLE signal (ON_ENABLE 1 to 4); and an overtravel signal (OT 1 to 4).

<CONNECT window for contactor systems>

On the CONNECT window of the contactor system, set the following: a servo board to which the control group is to be connected; the number of an axis which is to be connected to the connector of the servo board; the number of a brake which is to be connected to the brake board connector; a contactor unit to which the brake is to be connected; a converter to which the axis is to be connected; and an overtravel signal (OT 1 to 4).

●AXES CONFIGURATION

Set base and station.

There are 3 types of axis: ball screw, rack and pinion, and rotation. The one or two of them cannot be selected depending on the model type used.

 2 System Menu
 2.1 Initialize

●MECHANICAL SPECIFICATION

Set base and station.

If axis type is ball-screw type, set the following items.

MOTION RANGE (+)	[mm]
MOTION RANGE (-)	[mm]
REDUCTION RATIO (numerator)	
REDUCTION RATIO (denominator)	
BALL-SCREW PITCH	[mm/r]

If axis type is rack & pinion type, set the following items.

MOTION RANGE (+)	[mm]
MOTION RANGE (-)	[mm]
REDUCTION RATIO (numerator)	
REDUCTION RATIO (denominator)	
PINION DIAMETER	[mm]

If axis type is turn type, set the following items.

MOTION RANGE (+)	[deg]
MOTION RANGE (-)	[deg]
REDUCTION RATIO (numerator)	
REDUCTION RATIO (denominator)	
OFFSET (1st and 2nd axis)	[mm]

●MOTOR SPECIFICATION

Set base and station.

Set the following items.

MOTOR	
SERVO AMP	
CONVERTER	
ROTATION DIRECTION	[normal/reverse]
MAX. RPM	[rpm]
ACCELERATION SPEED	[sec]
INERTIA RATIO	

*Select MOTOR, AMPLIFIER and CONVERTER from each type list on the display.

2 System Menu
 2.1 Initialize

2.1.2.1 Type Setting

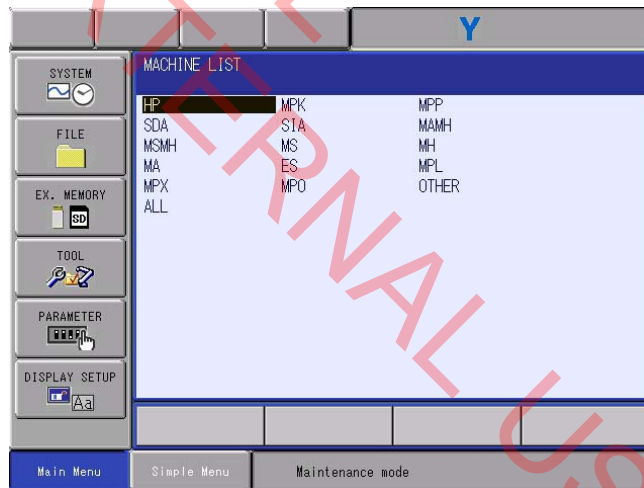
The type of control group is specified in the CONTROL GROUP window.

1. Confirm the type of control group in CONTROL GROUP window.
 - Confirm the type in CONTROL GROUP window.



2. Select the {DETAIL} of type to be modified.
 - The MACHINE LIST window appears.

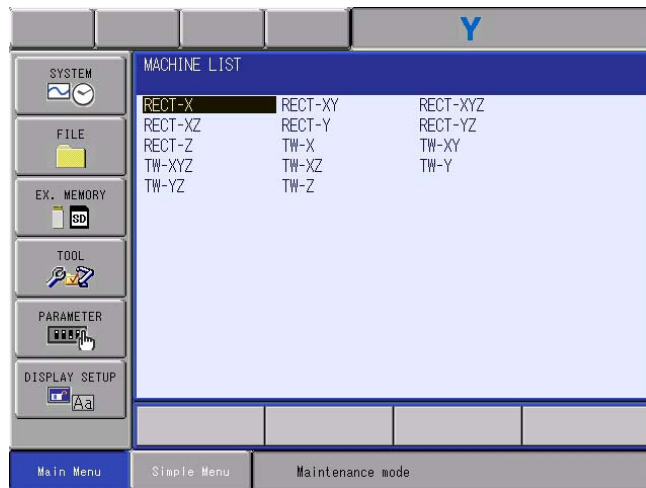
●In case of robot



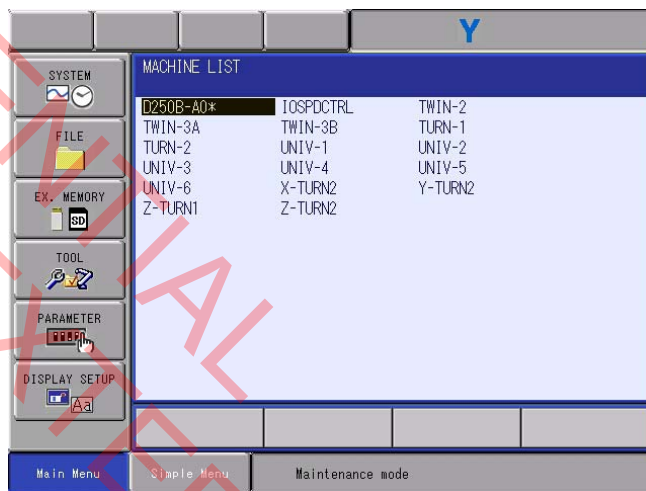
- Select one in the MACHINE LIST window.

2 System Menu
 2.1 Initialize

● In case of base



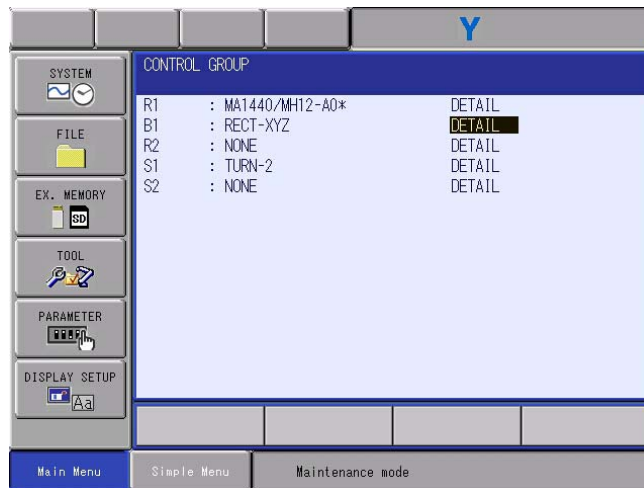
● In case of station



3. Select one in the MACHINE LIST window.
 - The CONTROL GROUP window appears.
4. Confirm all the types of control group.
 - This manual explains the following model setting as a typical example. Even when carrying out the initialization with a model different from the below, refer to this manual.

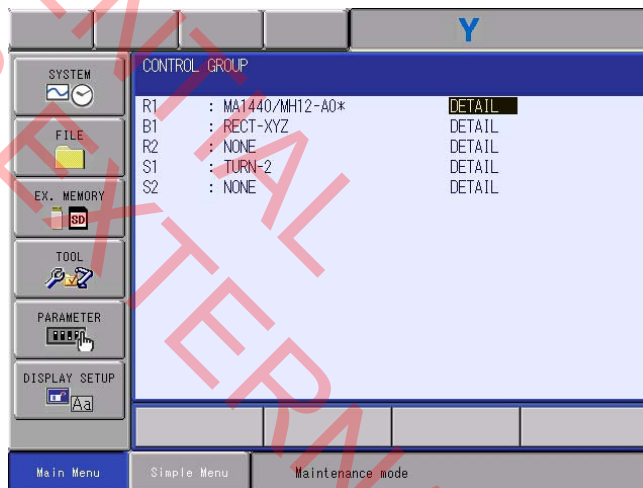
2 System Menu
 2.1 Initialize

● Station (TURN type)



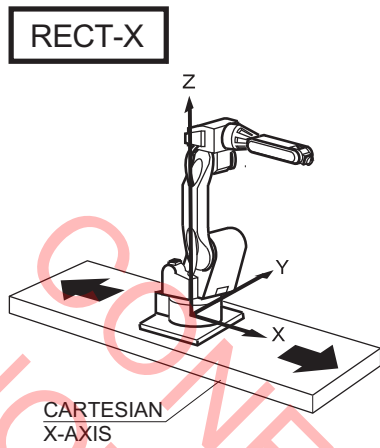
In addition, in setting of Axis Configuration, for explanation only, the station axis (axes) may be a universal type. In this case, "I Station (UNIVERSAL Type)" is shown (refer to the diagram below).

● Station (UNIVERSAL type)



5. Press [ENTER].
 - The window moves to the CONNECT window.

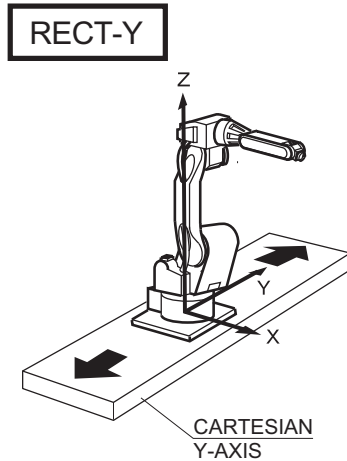
The RECT-* type of base axis is illustrated below.



RECT-X

CARTESIAN X-AXIS

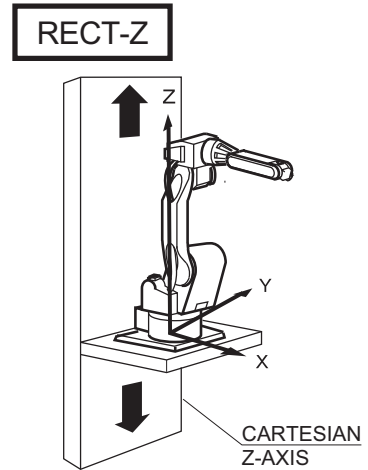
Base axis direction of travel coincides with robot coordinate X-Axis.



RECT-Y

CARTESIAN Y-AXIS

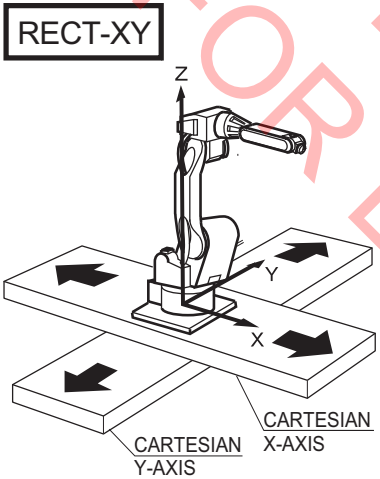
Base axis direction of travel coincides with robot coordinate Y-Axis.



RECT-Z

CARTESIAN Z-AXIS

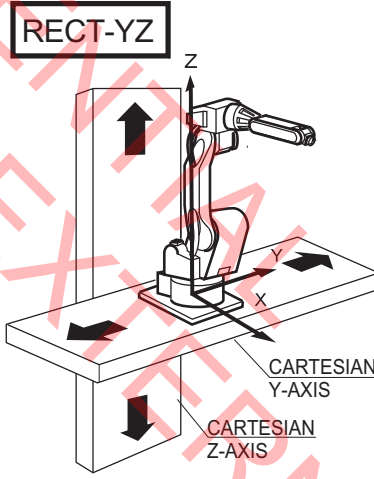
Base axis direction of travel coincides with robot coordinate Z-Axis.



RECT-XY

CARTESIAN Y-AXIS
CARTESIAN X-AXIS

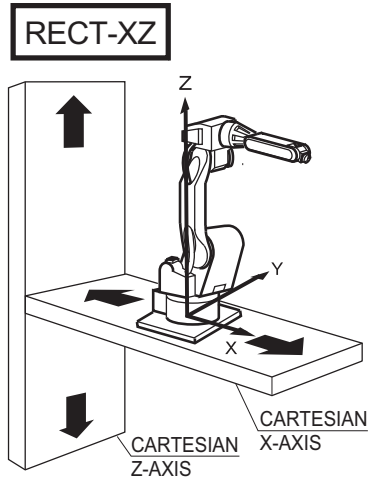
Base 1st and 2nd axes directions of travel coincide with robot coordinate X-Axis and Y-Axis, respectively.



RECT-YZ

CARTESIAN Y-AXIS
CARTESIAN Z-AXIS

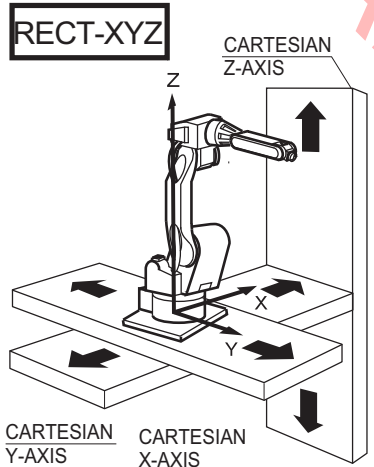
Base 1st and 2nd axes directions of travel coincide with robot coordinate Y-Axis and Z-Axis, respectively.



RECT-XZ

CARTESIAN X-AXIS
CARTESIAN Z-AXIS

Base 1st and 2nd axes directions of travel coincide with robot coordinate X-Axis and Z-Axis, respectively.



RECT-XYZ

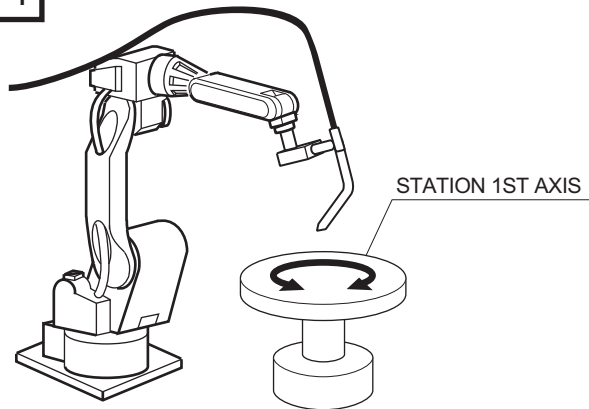
CARTESIAN Y-AXIS
CARTESIAN X-AXIS
CARTESIAN Z-AXIS

Base 1st, 2nd, and 3rd axes directions of travel coincide with robot coordinate X-Axis, Y-Axis, and Z-Axis, respectively.

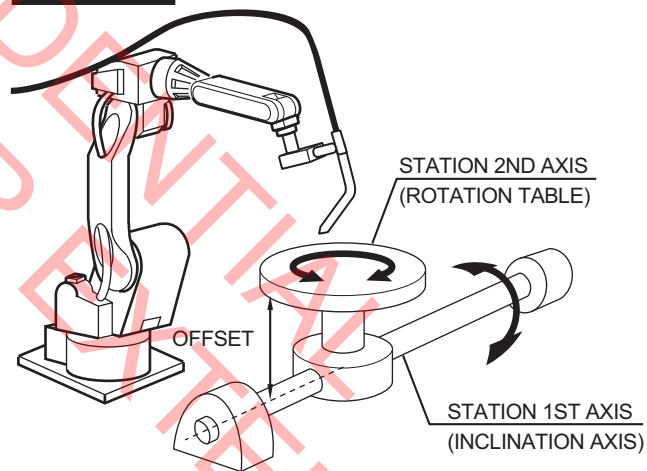
2 System Menu
 2.1 Initialize

The TURN-* type of station axis is illustrated below.

TURN-1



TURN-2



For YRC1000, 72 axes can be selected at most on the MACHINE LIST window.

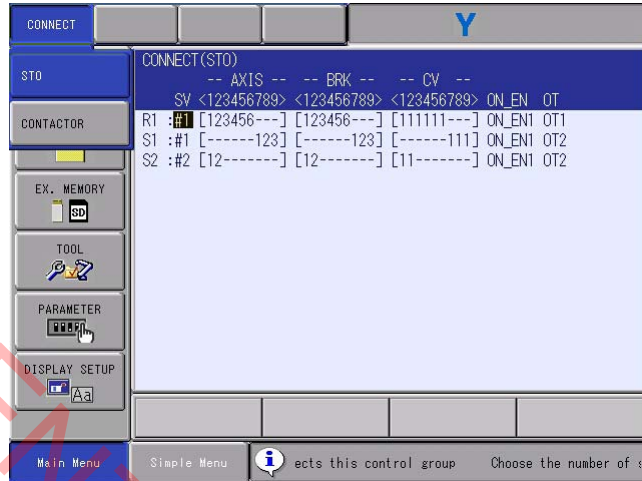
2 System Menu
 2.1 Initialize

2.1.2.2 Connection Setting

Immediately after the control group setting, execute the setting of connections. Confirm the system configuration, and then select STO or a contactor for the connection. Select {Pulldown Menu} - [CONNECT] to switch to STO or to a contactor. The default setting is STO.

<CONNECT window for STO systems>

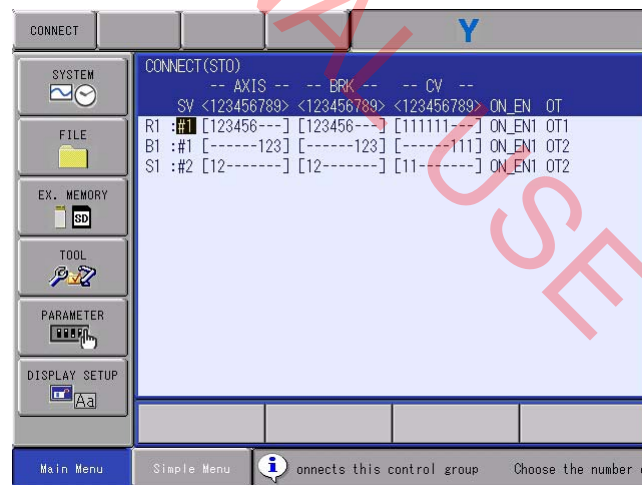
Select STO, and then STO is displayed for CONNECT in the title line.



Immediately after selecting STO, set the connections.

On the CONNECT window, specify the following: a servo board to which the control group is to be connected; the number of an axis which is to be connected to the connector of the servo board; the number of a brake which is to be connected to the brake board connector; a converter to which the axis is to be connected; settings to connect the STO and ON_ENABLE signal (ON_ENABLE 1 to 4); and an overtravel input.

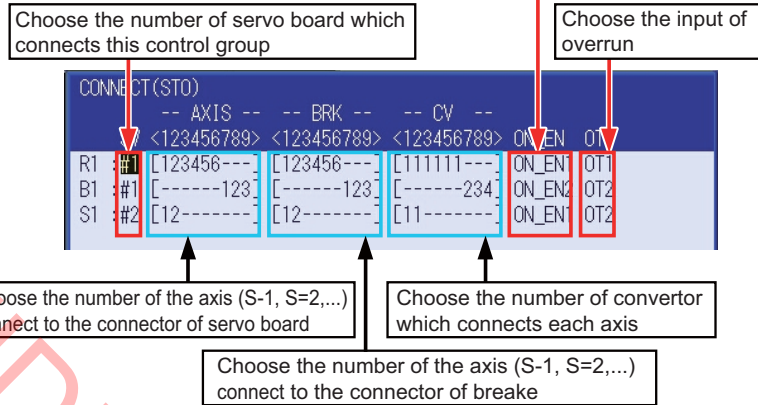
1. Confirm type of each control group in the CONNECT window.
 - The connection status of each control group is displayed.



2 System Menu
 2.1 Initialize

The control group which set "NONE" in the CONTROL GROUP window is not displayed.
 The construction of the CONNECT window is as follows.

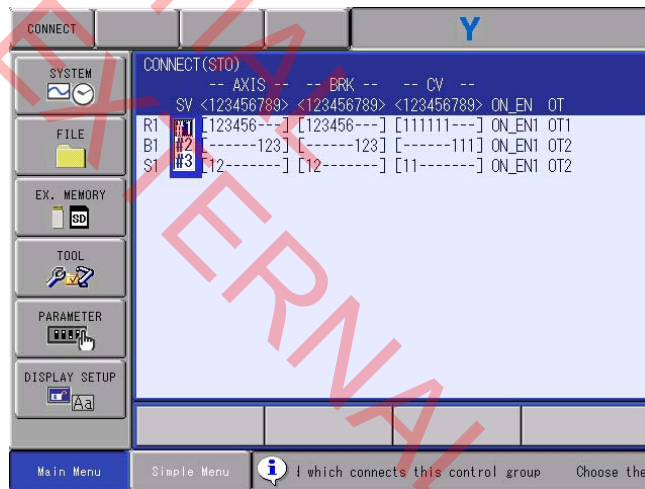
Perform allocation settings for the ON_ENABLE signal used in the control group, and then transfer that setting information to the machine safety board when turning ON the power. Because the machine safety board performs the control of the ON_ENABLE signal and its corresponding STO signal, select the relevant ON_ENABLE signal.



2. Point the cursor to the connection item to be modified and press [SELECT].

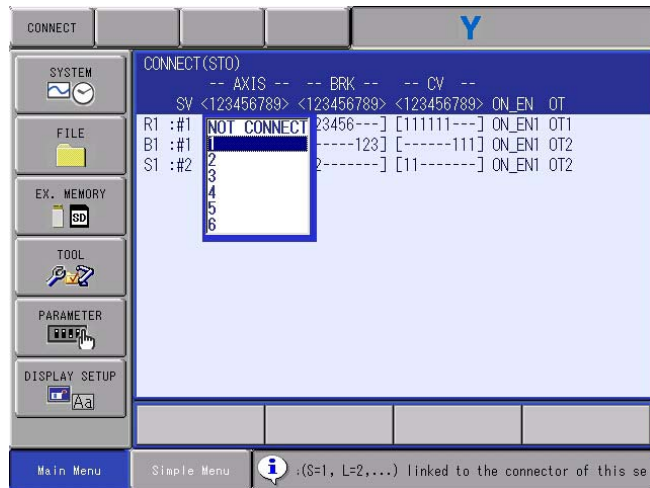
– The settable items are displayed.

- Select the number of the servo board



2 System Menu
 2.1 Initialize

- Select the axis number



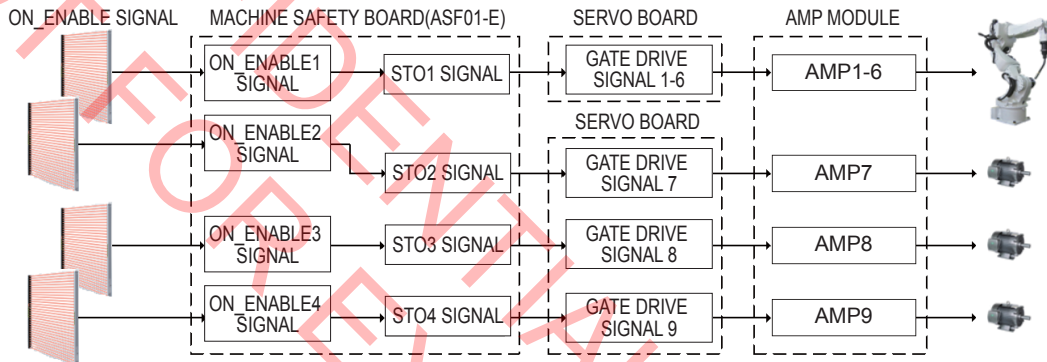
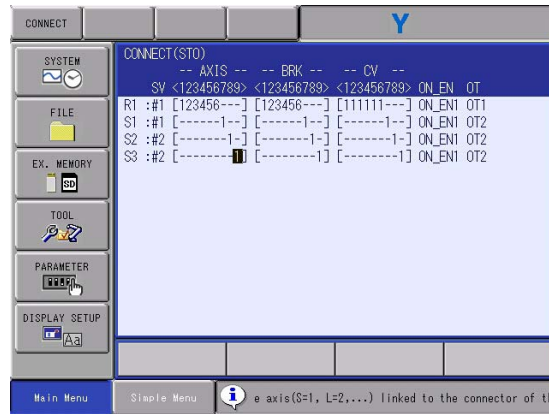
When the cursor is placed over where setting is impossible and press [SELECT], no field can appear.

3. Select the item.
 - Setting is changed when an item is selected.
4. Check the connection field of each control group to change on the CONNECT window.
5. Press [ENTER] on the CONNECT window.
 - The setting in the CONNECT window is completed and the window moves to the AXES CONFIG window.

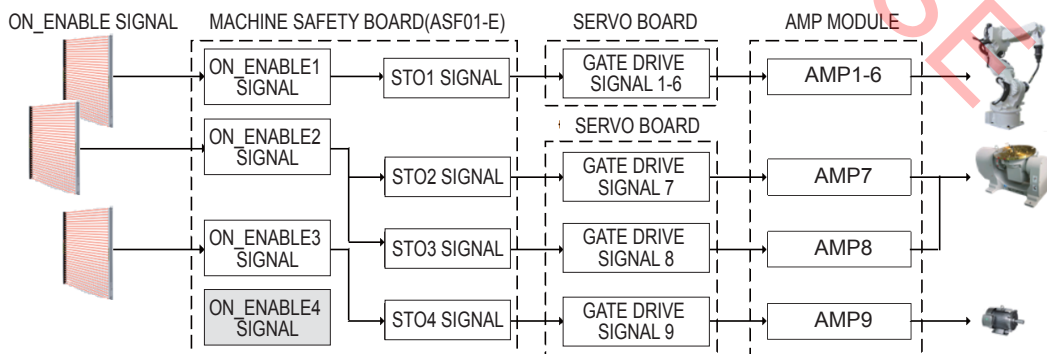
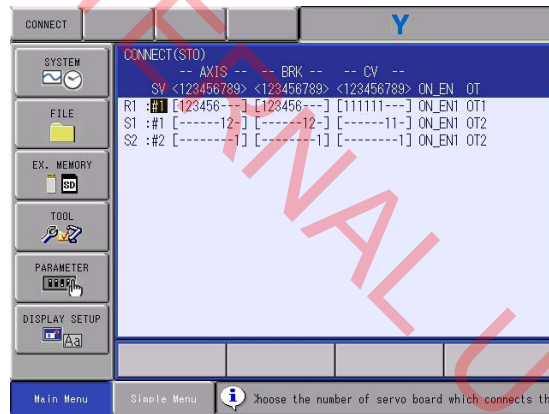
2 System Menu
2.1 Initialize

An example for CONTROL GROUP window settings when STO is selected is described below.

Example 1. <6-axis robot + S1 (1-axis) + S2 (1-axis) + S3 (1-axis)>

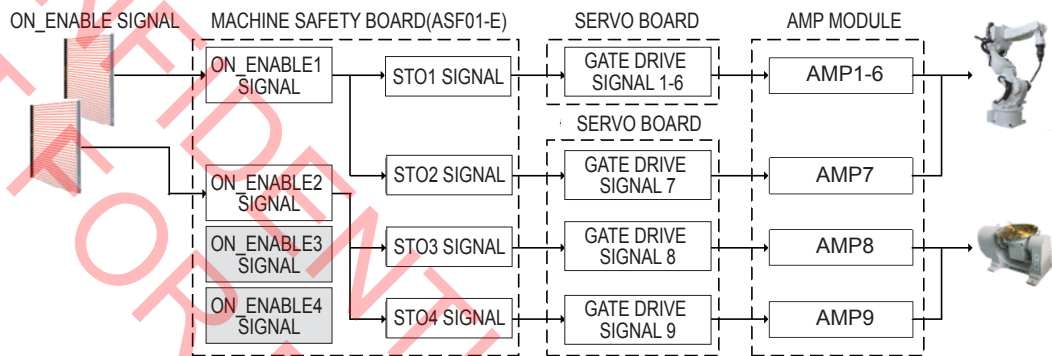
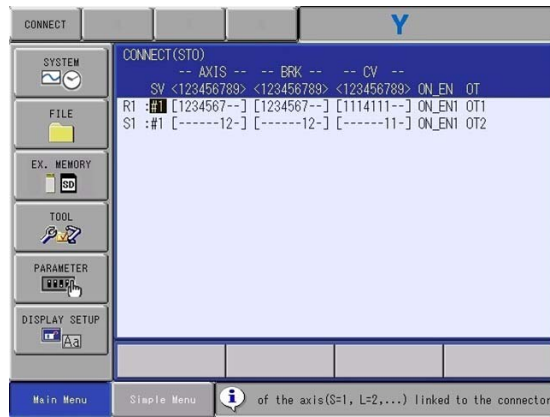


Example 2. <6-axis robot + S1 (2-axis) + S2 (1-axis)>



2 System Menu
2.1 Initialize

Example 3. <7-axis robot + S1 (2-axis)>



NOT FOR EXTERNAL USE

2 System Menu
 2.1 Initialize

<CONNECT window for contactor systems>

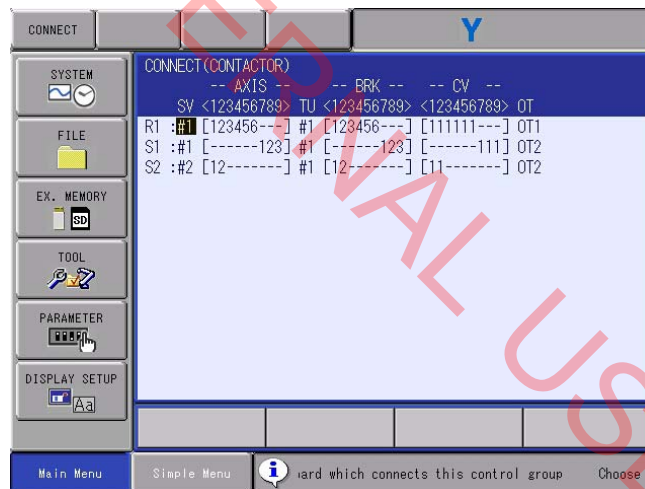
When {CONTACTOR} is selected, {CONTACTOR (CONNECTOR)} appears.



Immediately after selecting contactor, set the connections.

On the CONNECT window, specify the followings: a servo board to which the control group is to be connected; the number of an axis which is to be connected to the connector of the servo board; a contactor unit to which the control group is to be connected; a contactor unit to which the brake is to be connected; a converter to which the axis is to be connected; and an overtravel (OT) signal.

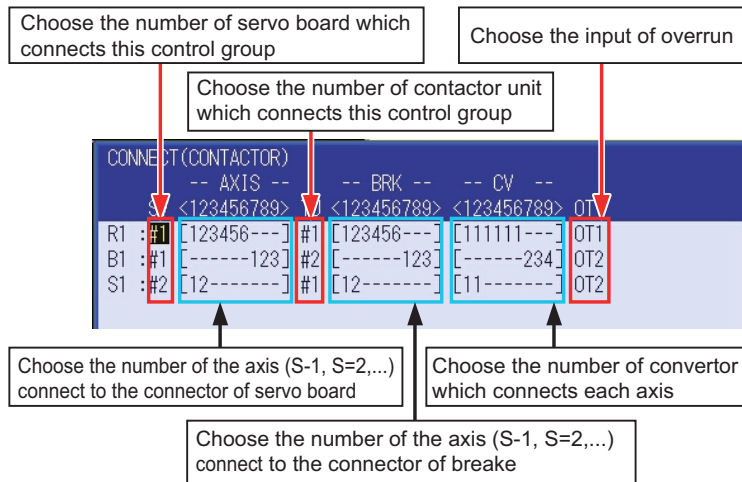
1. Confirm type of each control group in the CONNECT window.
 - The connection status of each control group is displayed.



The control group which set "NONE" in the CONTROL GROUP window is not displayed.

The construction of the CONNECT window is as follows.

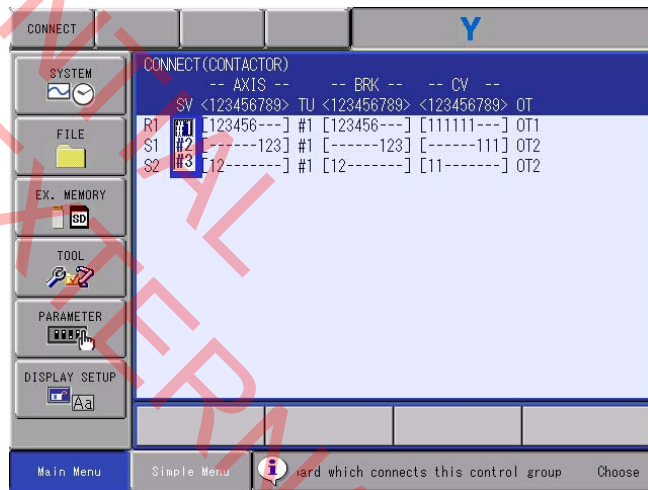
2 System Menu
2.1 Initialize



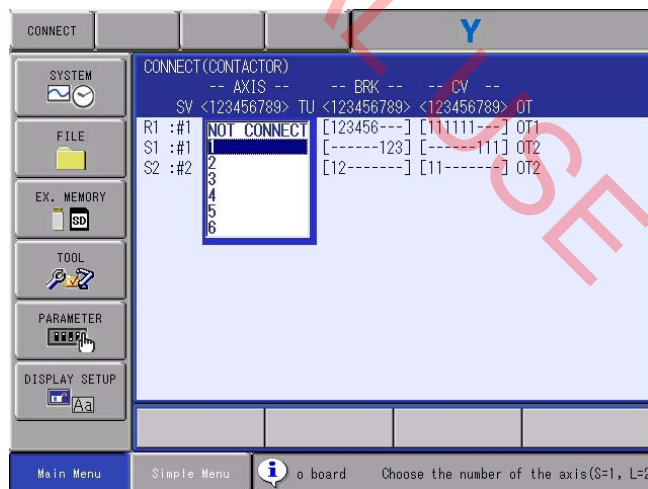
2. Point the cursor to the connection item to be modified and press [SELECT].

– The settable items are displayed.

- Select the number of the servo board



- Select the axis number



When the cursor is placed over where setting is impossible and press [SELECT], no field can appear.

2 System Menu
2.1 Initialize

3. Select the item.
 - Setting is changed when an item is selected.
4. Check the connection field of each control group to change on the CONNECT window.
5. Press [ENTER] on the CONNECT window.
 - The setting in the CONNECT window is completed and the window moves to the AXES CONFIG window.

An error message "Error 8217 Cannot change setting. Check the setting of spot high speed spec." may appear when [ENTER] is pressed in the CONNECT window.



When the error message appears, invalid SPOT HIGH SPEED SPEC or review the configuration of the control group by referring to "Chap.9.13 High Speed Spot Welding Function" in "YRC1000 OPERATOR'S MANUAL FOR SPOT WELDING USING MOTOR GUN".

2 System Menu
 2.1 Initialize

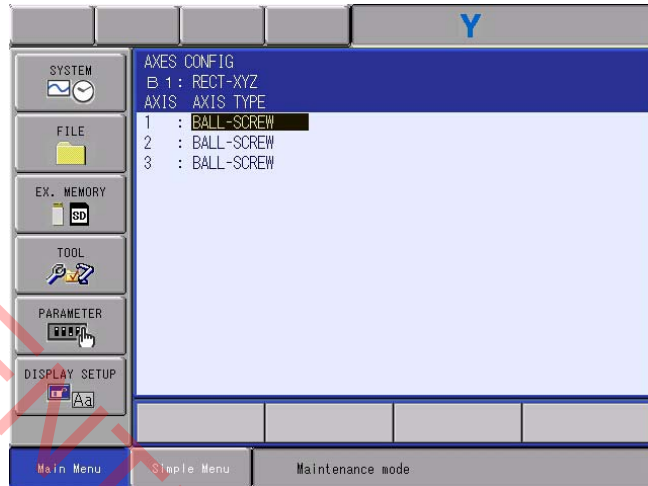
2.1.2.3 Axis Configuration Setting

Immediately after the connection setting, execute the setting of axes configurations.

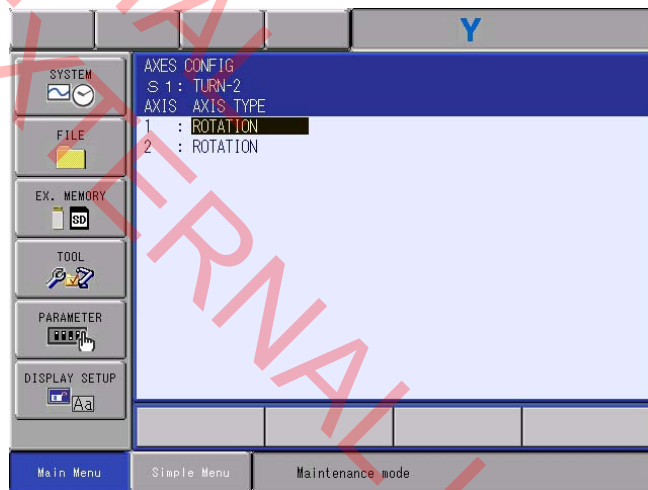
The axis type of base and station axis are specified in the AXES CONFIG window.

1. Confirm axis type of each axis in the AXES CONFIG window.
 - The axis type of each axis is displayed.

●In case of base



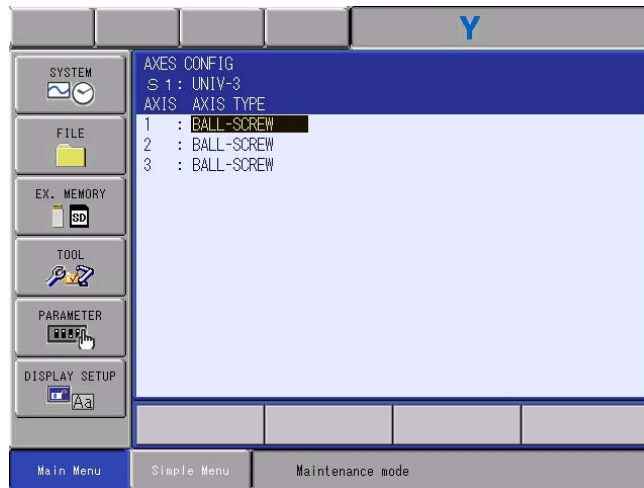
●In case of station (TURN type)



When axis type are "ROTATION" or "TWIN", the axis type cannot be changed.

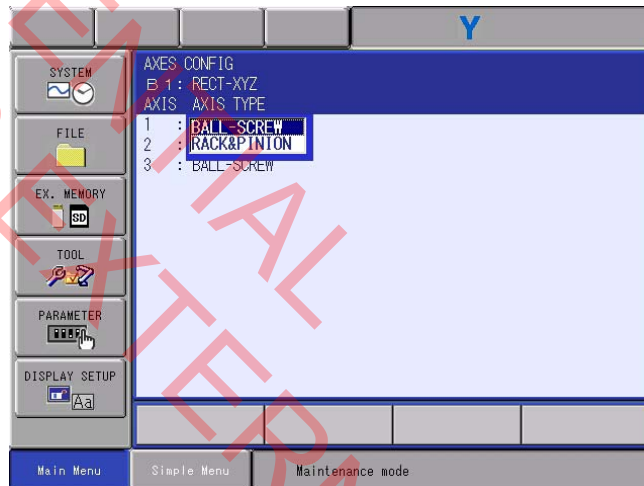
2 System Menu
2.1 Initialize

●In case of station (UNIVERSAL type)



2. Select the axis type to be modified.
 - The settable axis type is displayed.

●In case of base axis



●In case of base axis (UNIVERSAL type)



3. Select the desired axis type.
 - Axis type is changed.

2 System Menu
2.1 Initialize

4. Press [ENTER].
 - The window moves to axis configuration window of the next control group.
5. Press [ENTER] on the AXES CONFIG window.
 - After the setting, the current window moves to the window for the next axis setting. Complete the settings for all axes in the same manner.
6. Press [ENTER] on the AXES CONFIG window for the last axis.
 - When [ENTER] is pressed in the AXES CONFIG window for the last axis, the setting in the AXES CONFIG window is completed and the window moves to the MECHANICAL SPEC window.

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2 System Menu

2.1 Initialize

2.1.2.4 Mechanical Specification Setting

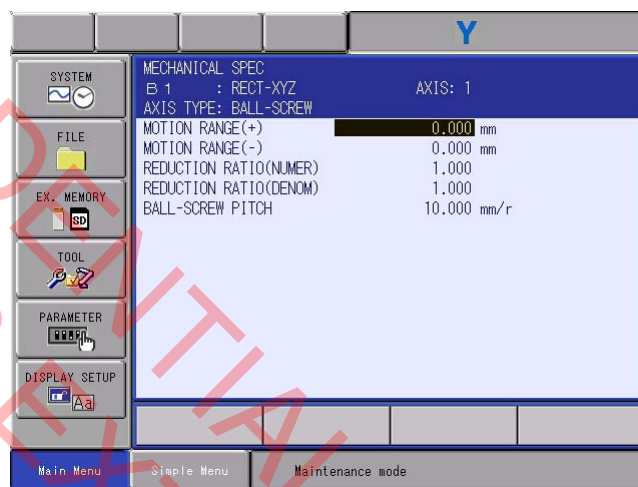
Immediately after the axis configuration setting, execute the setting of mechanism specifications.

The mechanical data (motion range, etc.) is specified in the MECHANICAL SPEC window.

1. Confirm specification of each axis in the MECHANICAL SPEC window (in case of the BALL-SCREW type).

– The mechanical specification of axis is shown.

- The MECHANICAL SPEC window (in case of the BALL-SCREW type)



{MOTION RANGE}

Input maximum moving position (positive (+) direction and negative (-) direction) from home position when setting the home position to 0. (Unit: mm)

{REDUCTION RATIO}

Input the numerator and the denominator.
<e.g.> If the reduction ratio is 1/2, the numerator should be set as 1.0 and the denominator should be set as 2.0.

{BALL-SCREW PITCH}

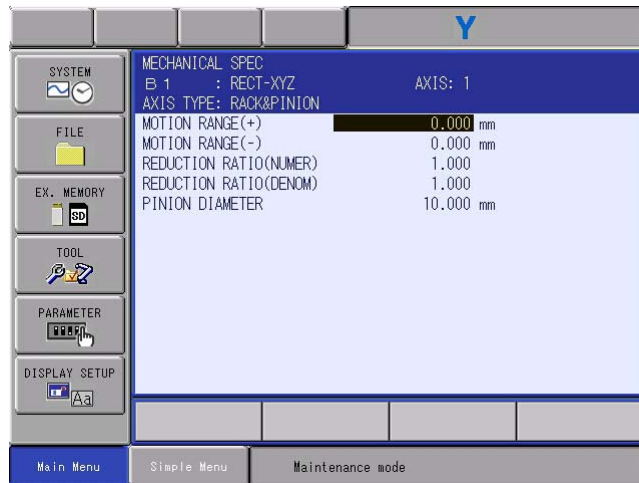
Input the traveling length when the ballscrew rotates once. (Unit: mm/r)

Confirm specification of each axis in the MECHANICAL SPEC window (in case of the RACK&PINION type).

– The mechanical specification of axis is shown.

2 System Menu
 2.1 Initialize

- The MECHANICAL SPEC window (in case of the RACK&PINION type)



{MOTION RANGE}

Input maximum moving position (positive (+) direction and negative (-) direction) from home position when setting the home position to 0. (Unit: mm)

{REDUCTION RATIO}

Input the numerator and the denominator.
 <e.g.> If the reduction ratio is 1/120, the numerator should be set as 1.0 and the denominator should be set as 120.0.

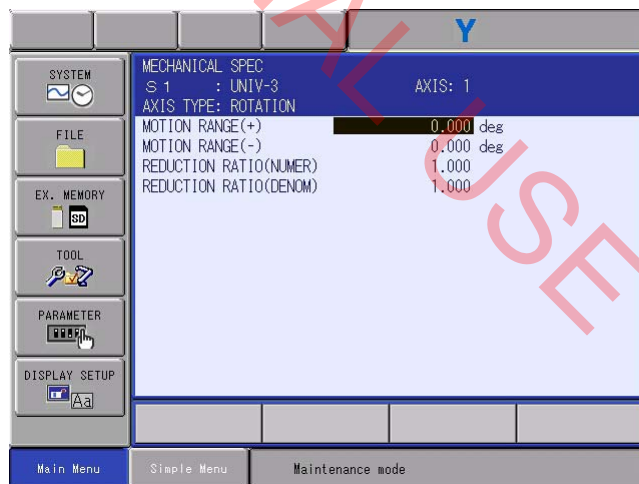
{PINION DIAMETER}

Input the diameter of a pinion. (Unit: mm)

Confirm specification of each axis in the MECHANICAL SPEC window (in case of the TURN type).

- The mechanical specification of axis is shown.

- The MECHANICAL SPEC window (in case of the TURN type)



The offset will be displayed on the first axis window only if the model is a rotation -2.

2 System Menu

2.1 Initialize

{MOTION RANGE}

Input maximum moving position (positive (+) direction and negative (-) direction) from home position when setting the home position to 0.
(Unit: deg)

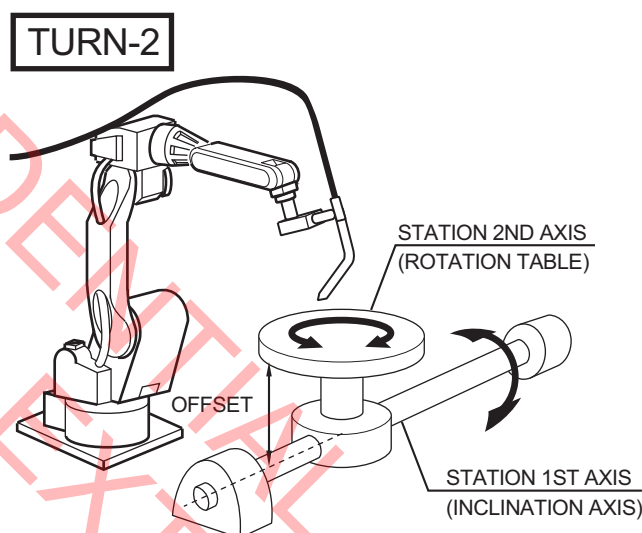
{REDUCTION RATIO}

Input the numerator and the denominator.

{OFFSET}

Offset should be specified at "TURN-2" type only.

Input length between the center of bending axis (1st axis) and the turning table (2nd axis). (Unit: mm)



2. Select the item to be modified.

- The selected item is in the input status.

For instance, if {MOTION RANGE (+)} is selected, numerical values are ready to be entered as follows.

MECHANICAL SPEC	
B 1 : 走行-XYZ	AXIS: 1
AXIS TYPE: BALL-SCREW	
MOTION RANGE(+)	0.000
MOTION RANGE(-)	0.000 mm
REDUCTION RATIO(NUMER)	1.000
REDUCTION RATIO(DENOM)	1.000
BALL-SCREW PITCH	10.000 mm/r

3. Input the setting value, and press [ENTER].

- Numerical value is changed into input value.

4. Press [ENTER] on the MECHANICAL SPEC window.

- After the setting, the current window moves to the window for the next axis setting. Complete the settings for all axes in the same manner.

5. Press [ENTER] on the MECHANICAL SPEC window for the last axis.

- When [ENTER] is pressed in the MECHANICAL SPEC window for the last axis, the setting in the MECHANICAL SPEC window is completed and the window moves to the MOTOR SPEC window.

2 System Menu
 2.1 Initialize

2.1.2.5 Motor Specification Setting

Immediately after the mechanism specification setting, execute the setting of motor specifications.

The motor data is specified in the MOTOR SPEC window.

1. Confirm specification of each axis in the MOTOR SPEC window.
 - The motor specification of each axis is displayed.



2. Select the desired item.

– {MOTOR}, {SERVO AMP} and {CONVERTER}

When MOTOR (or SERVO AMP or CONVERTER) is selected, the list window of MOTOR (SERVO AMP, or CONVERTER) appears.



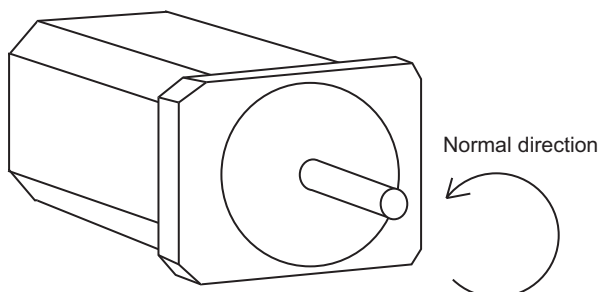
The list of the models registered in the system appears.

2 System Menu
2.1 Initialize

{ROTATION DIRECTION}

Set the rotation direction to which the current position is increased. Place the cursor and press [SELECT], and the CW and CCW will be switched with each other. (The counterclockwise view from the loaded side is the normal rotation.)

Fig. 2-1: AC Servo Motor



When a numerical value is selected in the following items, the number input buffer line appears.

{MAX. RPM}

Input maximum rotation speed of a motor. (Unit: rpm)

{ACCELERATION TIME}

Input time between 0.01 and 1.00 to reach maximum speed from stopping status at 100% JOINT speed. (Unit: sec.)

{INERTIA RATIO}

The initial value is set at 300 in case of servo track; 0 in case of rotation axis. However, if the following phenomenon occurs in motion, deal with the followed procedure.

- <Phenomenon1> During motion, the axis moves unsteady on advance direction.
 - Confirm the motion with increasing this ratio in each 100.
- <Phenomenon2> During pause, the motor makes a lot of noise.
 - Confirm the motion with decreasing this ratio in each 100.

3. Modify the settings.
4. Press [ENTER] on the MOTOR SPEC window.
 - After the setting, the current window moves to the window for the next axis setting. Complete the settings for all axes in the same manner.
5. Press [ENTER] on the MOTOR SPEC window for the last axis.
 - When [ENTER] is pressed in the MOTOR SPEC window for the last axis, the setting in the MOTOR SPEC window is completed and the window moves to the APPLICATION window.

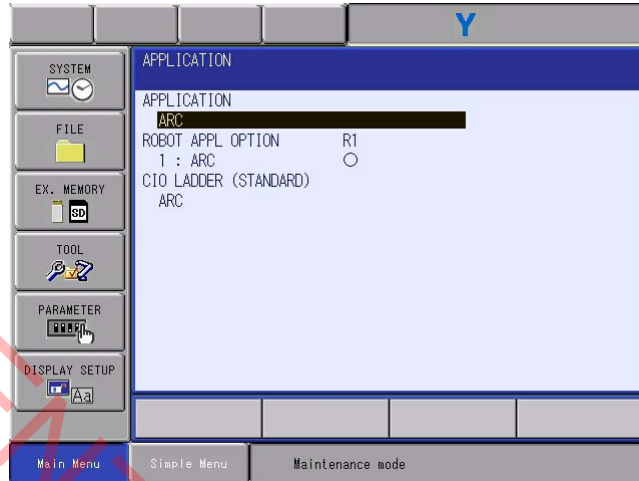
2 System Menu
 2.1 Initialize

2.1.3 Application

Immediately after the control group setting, execute the setting of applications.

On the APPLICATION window, execute the settings for application, the application for robot use and the CIO ladder.

1. Confirm the settings in APPLIACATION window.
 - The APPLICATION window appears.

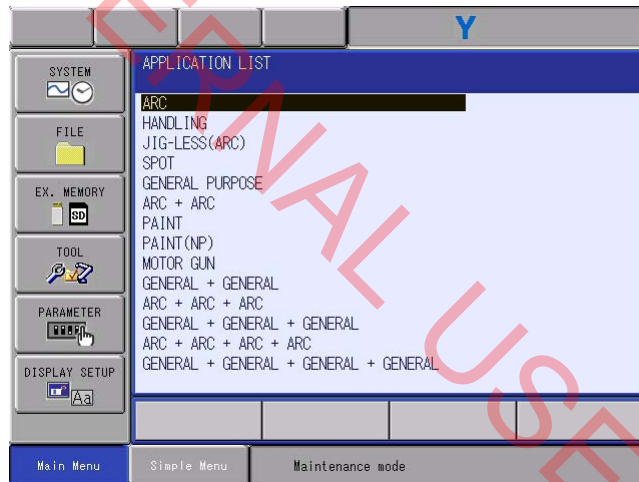


The specification of CIO ladder is shown in ().

2. Select the item to be changed.
 (in case of selecting {APPLICATION})

●APPLICATION

Select applications to use in the system.
 After the selection, the list appears.



Select the application to set, and the APPLICATION window appears.

- Select the item to be changed.
 (in case of selecting {ROBOT APPL OPTION})

●ROBOT APPL OPTION

Select the applications to use each robot.

“O” → Use

“-” → Not use

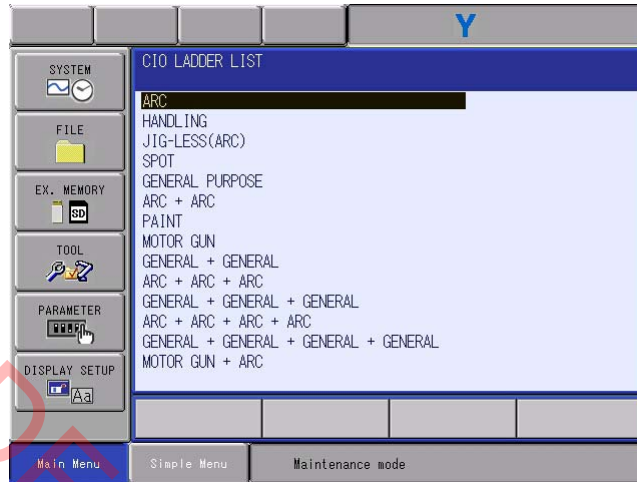
The setting changes whenever the [SELECT] is pressed.

2 System Menu
 2.1 Initialize

Select the item to be changed.
 (in case of selecting {CIO LADDER})

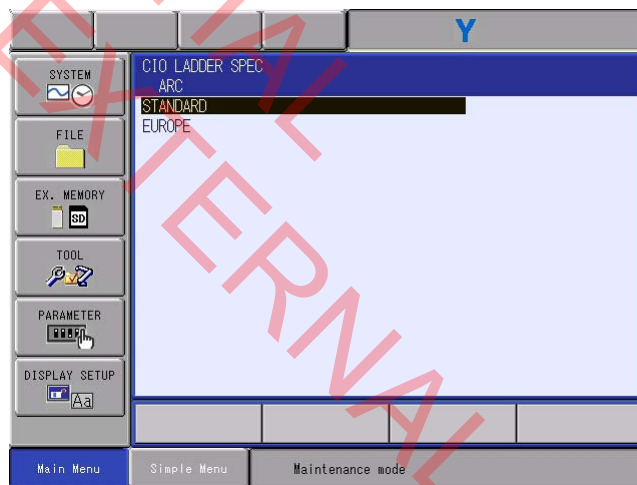
● CIO LADDER

Set the ladder to be used with the system.
 After the selection, the list appears.



When selecting the ladder with 2 or more specifications, the CIO ladder specification window appears. And then select a CIO ladder specification.

A CIO ladder with only a standard specification will not appear.



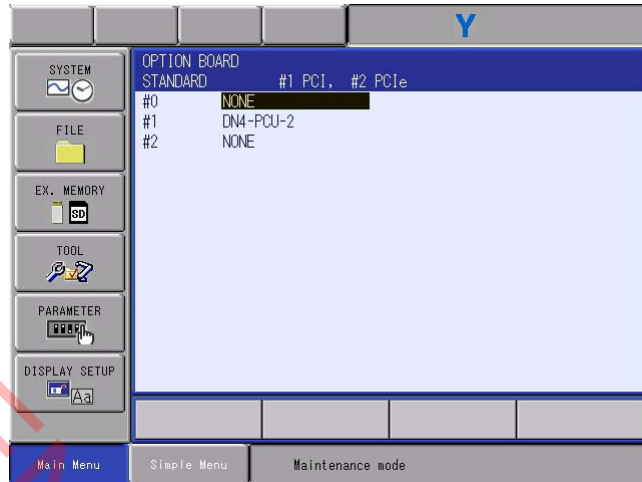
3. Modify the settings.
 - Confirm the each settings.
4. Press [ENTER] on the APPLICATION window.
 - Press [ENTER] on the APPLICATION window to complete the settings on the APPLICATION window, and move to the OPTION BOARD window.

2 System Menu
 2.1 Initialize

2.1.4 Optional Board

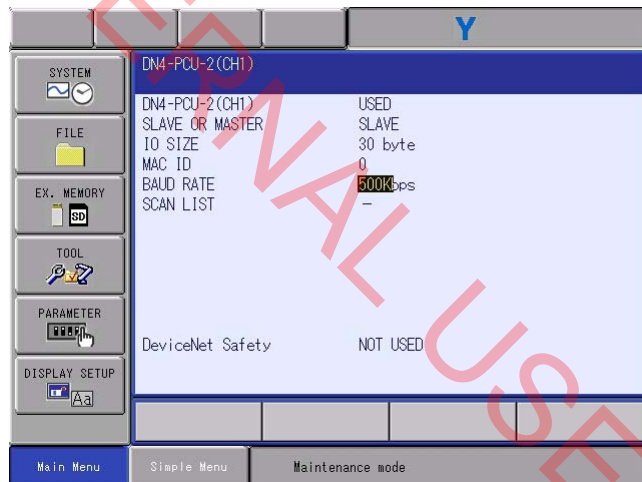
Immediately after the application setting, execute the setting of optional boards.

1. Confirm the status of mounted option board.
 - The current status of the mounted option board is shown. If there is a board, the function name appears on the window.



If there is an inconsistency between the mounted optional board and the display on the OPTION BOARD window, place the cursor to select.

2. Place the cursor and select the existing board.
 - Setting fields differ from optional board to optional board. Execute the setting according to the manual for the optional board to use. According to the setting based on this manual, the window of the DN3-PCU-1 board appears.



3. Select the function to be set.
 - The OPTION BOARD window appears.
4. Press [ENTER].
 - Setting fields differ from optional board to optional board. Refer to the manual for the optional board to use, and follow the instructions on the window.

-
- 2 System Menu
 - 2.1 Initialize
-

- 5. Press [ENTER].
 - The IO MODULE window appears.



It may be necessary to set the advanced fields depending on the function mounted on the optional board. For the way to set the advanced fields, refer to the manual for each function.

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2 System Menu
 2.1 Initialize

2.1.5 IO Module

Immediately after checking the optional board, execute the setting of I/O modules.

1. Confirm the status of the mounted I/O module.

– The current status of the mounted I/O module is shown.



Confirm that each station (ST#) is the same as the I/O module's actual mounting status.

The following information is shown for each station.

- ST# : Station address of I/O module
- DI : Number of contact input points*1)
- DO : Number of contact output points*1)
- AI : Number of analog input points*1)
- AO : Number of analog output points*1)
- BOARD : Circuit board type*2)

*1 A hyphen, -, indicates that the corresponding I/O section is not mounted.

*2 If the system cannot recognize the circuit board type, a row of stars (*****) are shown. No problem will occur as long as the values displayed in DI, DO, AI, and AO are correct.

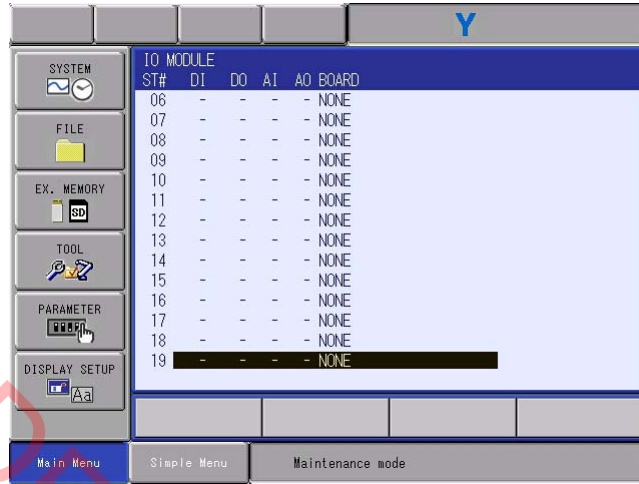
2. Press [ENTER].

– Press [ENTER], and the cursor will jump to ST#13

2 System Menu
 2.1 Initialize

3. Press [ENTER].

- Press [ENTER], and the cursor will jump to ST#19. Check the mounting condition of the I/O modules of the remaining stations. However, that once the cursor is placed on ST#19, the window will move to the CMOS MEMORY window by pressing [ENTER].



4. Press [ENTER].

- Moves to the CMOS MEMORY window.

NOTE

If there is a difference between the displayed contents and the actual mounted status, confirm the status again. If the status is correct, the I/O module may be defective: in such a case.

2 System Menu

2.1 Initialize

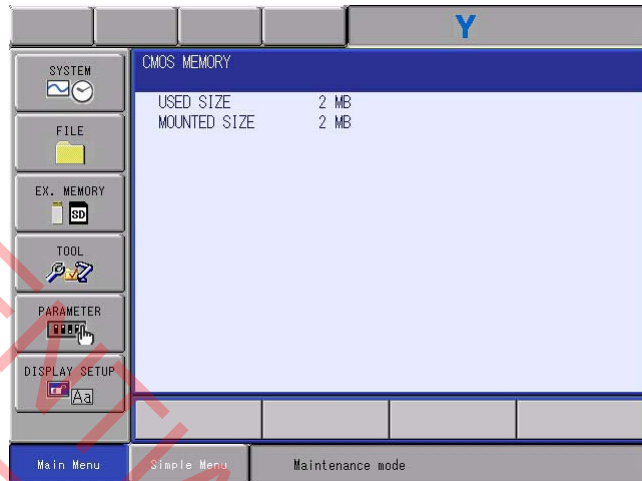
2.1.6 CMOS Memory

Immediately after the I/O module checking, execute the setting of the CMOS memory capacity mounted.

1. Confirm the status of mounted CMOS memory.

- The current status of the mounted CMOS memory is shown.

Check whether the mounted capacity of the robot I/F board (JANCD-AIF01-□E) and the mounted capacity displayed on the CMOS MEMORY window are the same.



2. Press [ENTER].

- Moves to the DATE/TIME SET window.



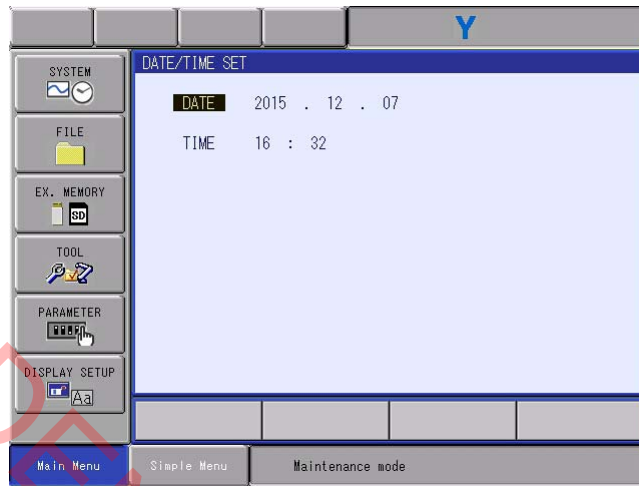
If the mounted capacity of the robot I/F board (JANCD-AIF01-□E) and the mounted capacity displayed on the CMOS MEMORY window are different, then check the mounting condition of the robot I/F unit. If the mounting condition has no problem, then there is a possibility that the board is at fault. Replace the board with a new one.

2 System Menu
 2.1 Initialize

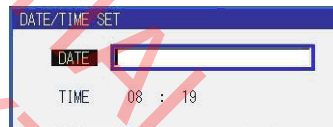
2.1.7 Date and Time

Immediately after the CMOS memory setting, execute the setting of the time and the date of the system.

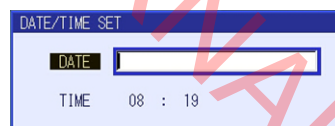
1. Confirm date and clock.
 - The DATE/TIME SET window appears.



2. Select "DATE" or "TIME".
 - "The input buffer line appears.

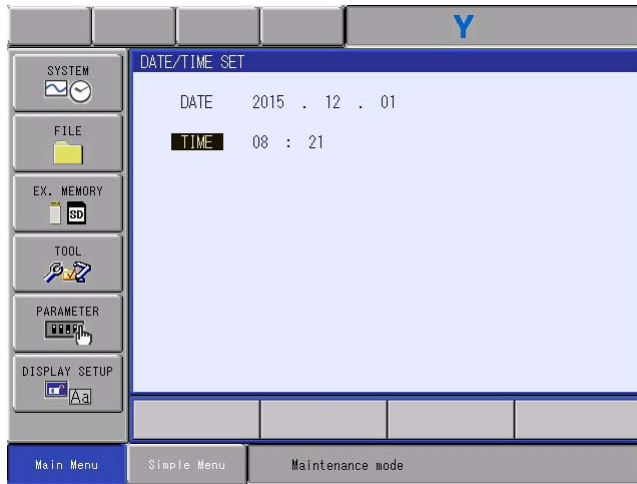


3. Input the new date/time.
 - Input the full digits. For instance, to set the date to December 1, 2015, input "2015.12.1". To set the time at eight nineteen, enter "08.19".

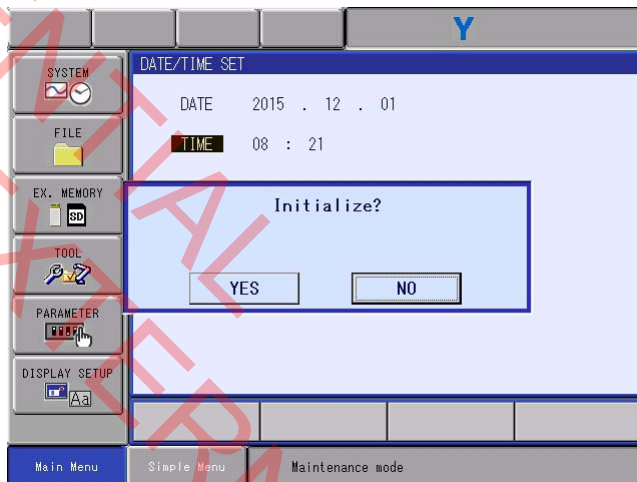


2 System Menu
 2.1 Initialize

4. Press [ENTER].
 - The DATE/TIME is changed.



5. Press [ENTER].
 - The confirmation dialog box of initialization appears.



6. Select {YES}.
 - Select {YES} in the confirmation dialog, and system parameters are set automatically according to the selection condition of each window set so far.
 - After the initialization, the following window appears.

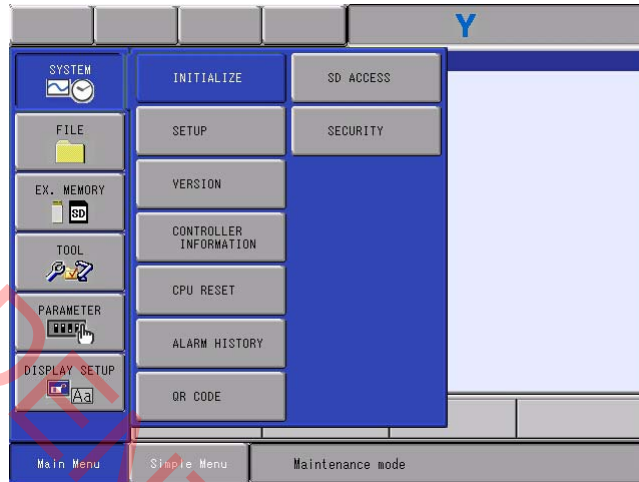


2 System Menu
 2.2 Setup

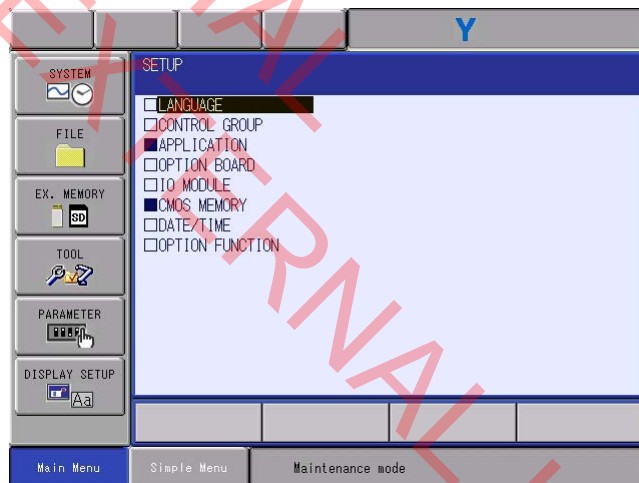
2.2 Setup

Here, it is possible to change a part of the system configuration which has been already initialized, or to refer to the content of such configuration.

1. Select {SYSTEM} under the main menu.
 - {INITIALIZE}, {SETUP}, {VERSION}, and {SECURITY} appears.



2. Select {SETUP}.
 - The SETUP window appears.

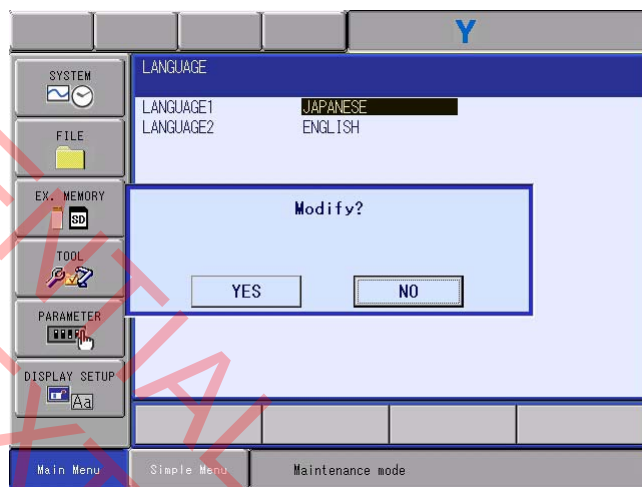


The item marked with "■" cannot be set (change).
 (Only reference is available.)

2.2.1 Language Setup

It is possible to set (or change) the first language and the second language.

1. Select {LANGUAGE} under the SETUP window.
2. Select the language to be modified.
 - The LANGUAGE LIST window appears.
3. Select the language to set.
 - Select the language, the LANGUAGE window appears.
4. Press [ENTER].
 - The confirmation dialog box of parameter change appears.



5. Select {YES}.
 - If {YES} is selected, the system parameter is set automatically according to the selective status of window, and then the SETUP window appears.

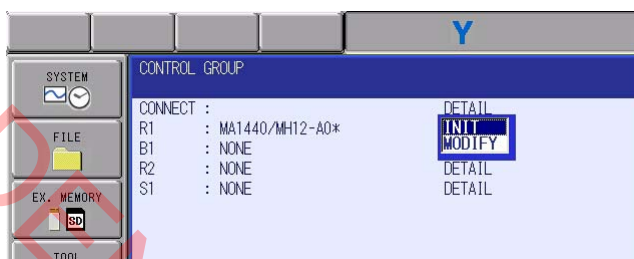
2 System Menu
2.2 Setup

2.2.2 Control Group Setup

On the CONTROL GROUP window, it is possible to execute (or change) various settings such as a model, mechanism specifications, etc. for each control group.

1. Select {CONTROL GROUP} under the SETUP window.
 - The SETUP window appears.
2. Select "DETAIL" of the type to be modified.
 - Each individual setting can be changed according to the selection.

●In case of robot

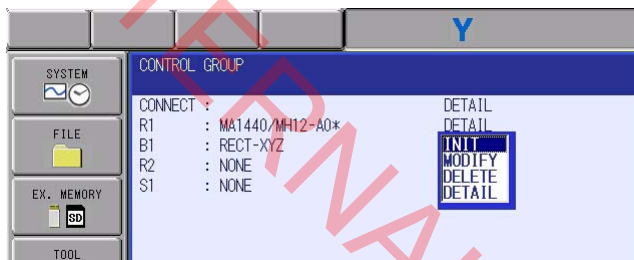


If "DETAIL" where a model has been registered is selected, the selection dialog appears.

If "DETAIL" where a model has been indicated "NONE" is selected, the MACHINE LIST window appears.

If [ENTER] is pressed in the "DETAIL" setting, all the fields for the selected model will be changed.

●In case of base



If "DETAIL" where a model has been registered is selected, the selection dialog appears.

If "DETAIL" where a model has been indicated "NONE" is selected, the MACHINE LIST window appears.

If [ENTER] is pressed in the "DETAIL" setting, all the fields for the selected model will be changed.

2 System Menu
 2.2 Setup

●In case of station



If "DETAIL" where a model has been registered is selected the selection dialog appears.

If "DETAIL" where a model has been indicated "NONE" is selected, the MACHINE LIST window appears.

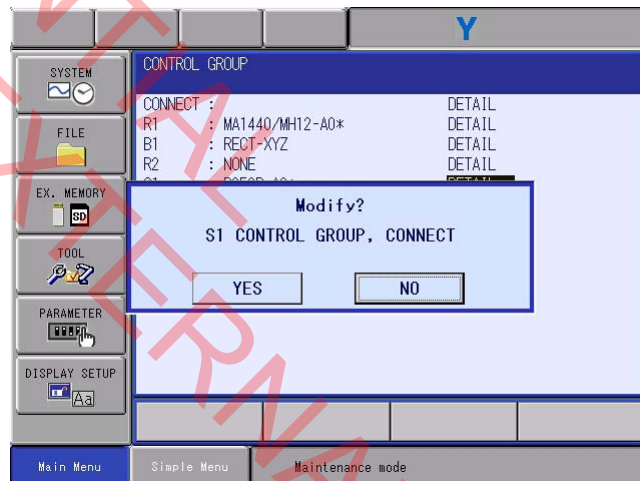
If [ENTER] is pressed in the "DETAIL" setting, the items of the corresponding control group will be changed.

3. Set the selected items.

- Change the fields selected with the “DETAIL” setting.

4. Press [ENTER] on the final window.

- A confirmation dialog box will appear when the S1 control group is changed.



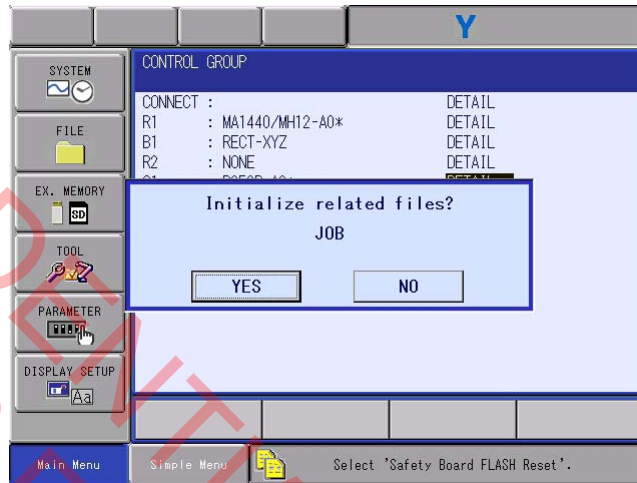
2 System Menu
 2.2 Setup

5. Select {YES}.

- If {YES} is selected in the confirmation dialog box, the system parameters of the corresponding control group is automatically set, and then the SETUP window appears.

However, if the control axis configuration is changed by addition of a base axis or station axis, the internal data of the job file are also changed so that the job file data should be initialized.

After selecting {YES} in the confirmation dialog, the system will automatically determine the necessity of the initialization of job data, and show a message to confirm the execution of the initialization.



Select {YES} to initialize the job file.

Select {NO} to cancel the initialization of the job file for reasons such as the backing up of the file.

In this case, the job file should be initialized before the operation is carried out with the changed control group.

6. Select {YES}.

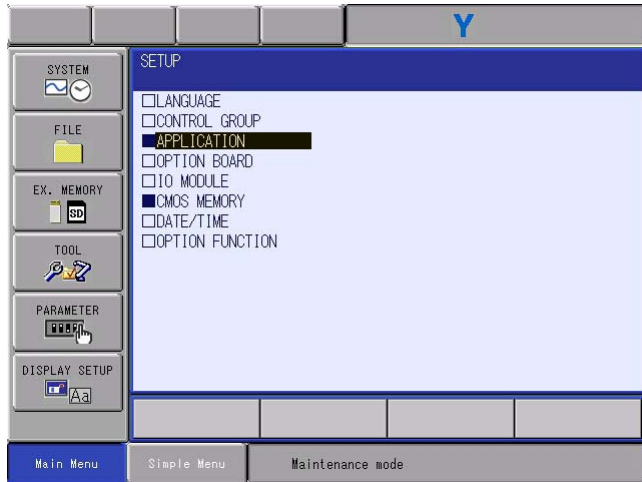
- The SETUP window appears.



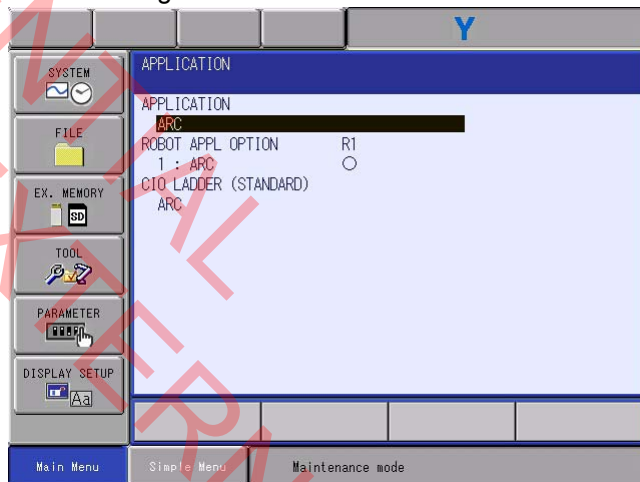
If the parameter or the file used in the safety board is changed, the message, "Select 'Safety Board FLASH Reset'." appears on the message area of the programming pendant, and then perform the settings by referring to chapter 3.3 "Safety Board FLASH Reset".

2.2.3 Application Setup

The setting status of application, robot application, and CIO ladder can be checked in the APPLICATION window.



1. Select {APPLICATION} under the SETUP window.
 - The current settings can be checked.



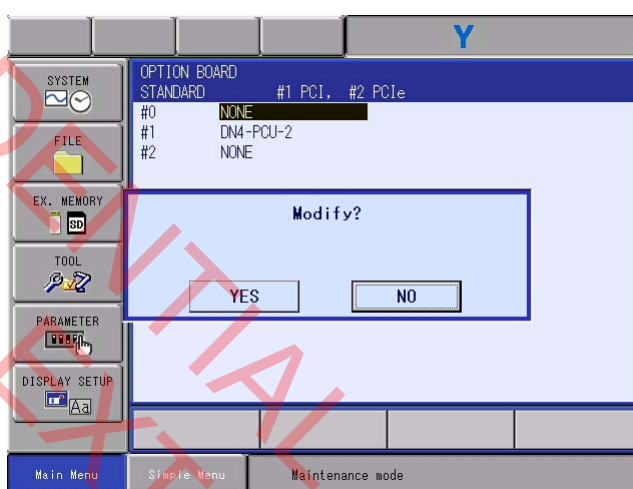
2 System Menu
2.2 Setup

2.2.4 Optional Board Setup

Setting (modifying) of optional board is possible in optional board window.

On adding an optional board, carry out the following operation with the maintenance mode after mounting the optional board while power is disconnected.

1. Select {OPTION BOARD} under the SETUP window.
2. Execute settings (or changes) on each window like the case of initialization.
 - For details on operation, refer to *chapter 2.1.4 “Optional Board”*.
3. Press [ENTER] on the OPTION BOARD window.
 - The confirmation dialog box of parameter change appears.



4. Select {YES}.
 - If {YES} is selected, the system parameter is set automatically according to the setting result of optional board. Then, the system will automatically determine the necessity of the initialization of a relevant file, and show a message to confirm the execution of the initialization.
5. Select {YES}.
 - The SETUP window appears. However, if the I/O module of a PCI type is mounted, the setting window for I/O modules appears.

NOTICE

- It may be necessary to set the advanced fields depending on the function mounted on the optional board. For the way to set the advanced fields, refer to the manual for each function.
- In the case of replacing the optional board with a new one, execute settings (or changes) after removing the board. Add the new board while power is disconnected, and then execute the settings (or changes) again. The replacement of I/O modules is carried out in the same way.

2.2.5 I/O Module Setup

It is possible to set (or change) the IO modules on the IO MODULE window. The operation is carried out like the case of {INITIALIZE}. On adding an I/O module, carry out the following operation with the maintenance mode after mounting the I/O module while power is disconnected.

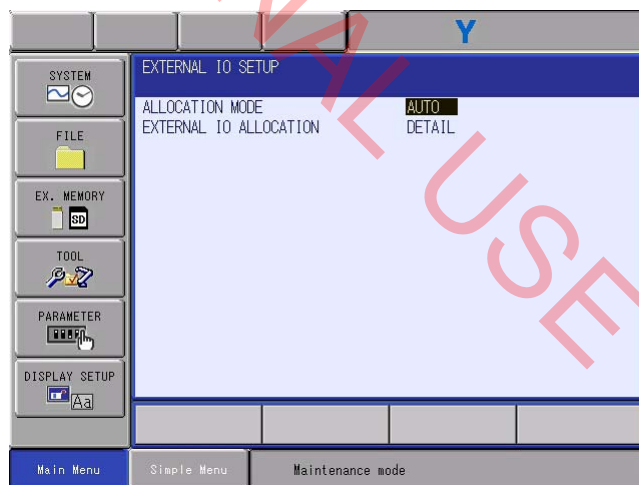
1. Select {IO MODULE} under the SETUP window.
2. Execute settings (or changes) on each window like the case of initialization.
 - For details on operation, refer to *chapter 2.1.5 "IO Module"*.
3. Press [ENTER].
 - Press [ENTER], and the cursor will jump to ST#13.
4. Press [ENTER] on the IO MODULE window.
 - Press [ENTER], and the cursor will jump to ST#19. Check the mounting condition of the I/O modules of the remaining stations. However, that once the cursor is placed on ST#19, the EXTERNAL IO SETUP window appears by pressing [ENTER].

NOTE

If the parameter or the file used in the safety board is changed, the message, "Select 'Safety Board FLASH Reset'." appears on the message area of the programming pendant, and then perform the settings by referring to *chapter 3.3 "Safety Board FLASH Reset"*.

If "YES" is selected in the confirmation dialog box, the system parameter is set automatically according to the current hardware mounted status, and then the EXTERNAL IO SETUP window appears.

5. Press [ENTER] in the EXTERNAL IO SETUP window.
 - EXTERNAL IO ALLOCATION(INPUT) window appears.

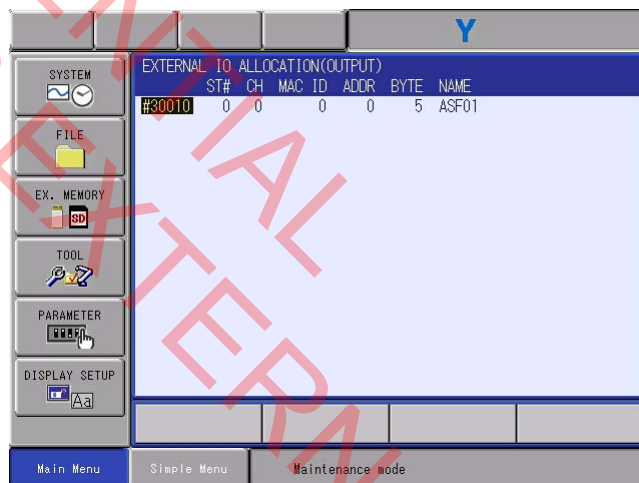


2 System Menu
 2.2 Setup

6. Press [ENTER] in the EXTERNAL IO ALLOCATION(INPUT) window.
 - EXTERNAL IO ALLOCATION(OUTPUT) window appears.



7. Press [ENTER] in the EXTERNAL IO ALLOCATION(OUTPUT) window.
 - The confirmation dialog box appears.



2 System Menu
 2.2 Setup

8. Select "YES".

- If "YES" is selected in the confirmation dialog box, the system parameter is set automatically according to the current hardware mounted status, and then the SETUP window appears.



NOTE To set the external IO signal allocation, refer to "Chap. 12.2 Allocating External I/O Signal" in "YRC1000 INSTRUCTIONS (RE-CTO-A221)".

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- 2 System Menu
- 2.2 Setup

2.2.6 Checking CMOS Memory

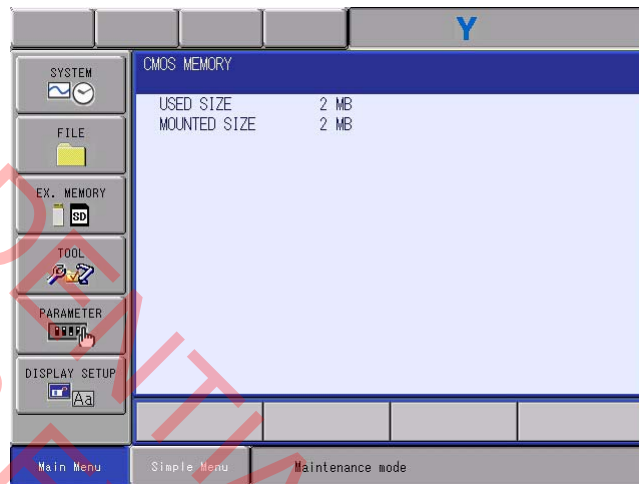
The mounting condition of the CMOS memory can be checked on the CMOS MEMORY window.

JANCD-AIF01-1E: CMOS memory size is 2 MByte.

JANCD-AIF01-2E: CMOS memory size is 4 MByte.

JANCD-AIF01-3E: CMOS memory size is 4 MByte. (Used in HC10)

1. Select {CMOS MEMORY} under the SETUP window.
2. Confirm the status of mounted CMOS memory.
 - The mounting state of a CMOS memory is appears.



If the INITIALIZED SIZE and the MOUNTED SIZE are different, then the INITIALIZED SIZE, as the capacity that can be actually used, will be shown.

Execute {INITIALIZE} again to use the whole MOUNTED SIZE.

* At the time of the execution of {INITIALIZE}, if necessary, back up other CMOS data such as job data because they are also initialized.

3. Press [ENTER].
 - The SETUP window appears.

2.2.7 Setting the Date and Clock

The date and time can be set (changed) in DATE/TIME SET window. For details on operation, refer to *chapter 2.1.7 "Date and Time"*.

1. Select {DATE/TIME} under the SETUP window.
 - The DATE/TIME SET window appears.
2. Select "DATE" or "TIME".
3. Input the new date/time.
 - For instance, to set the date to March 30, 2013, input "2013.3.30".
To set the time at eleven thirty-one, enter "11.31".
4. Press [ENTER].
 - The DATE/TIME is changed.
5. Press [ENTER].
 - The SETUP window appears.

NOTE

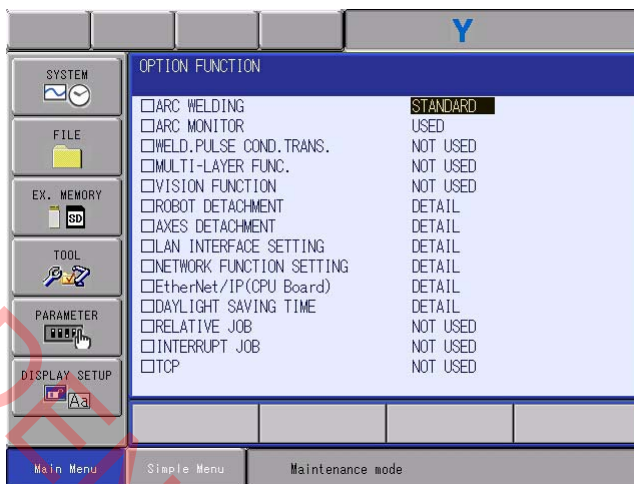
The date and the time can be changed by setting the management mode or upper mode of the security mode.

2 System Menu
2.2 Setup

2.2.8 Editing Option Function

It is possible to set (or change) the optional functions on the OPTION FUNCTION window.

1. Select {OPTION FUNCTION} under the SETUP window.
 - The OPTION FUNCTION window is appears.



- Examples of option functions are shown below.



2. Select the item of the optional function to set.

2 System Menu
 2.2 Setup

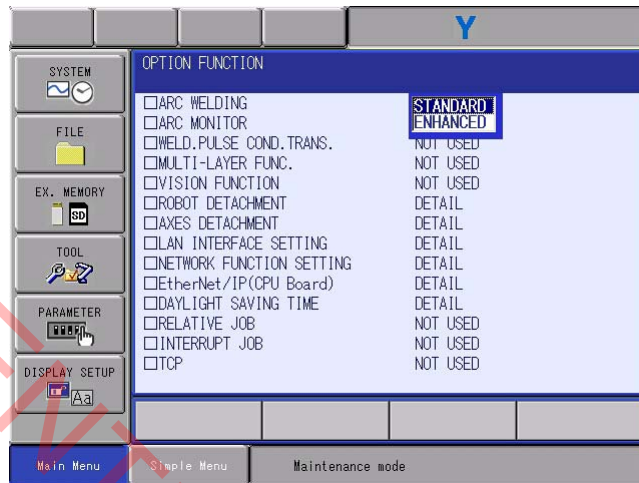
2.2.8.1 Arc Welding Function

The arc welding function can be set (changed) in OPTION FUNCTION window.

If the parameter has been set (changed), default parameter is set automatically.

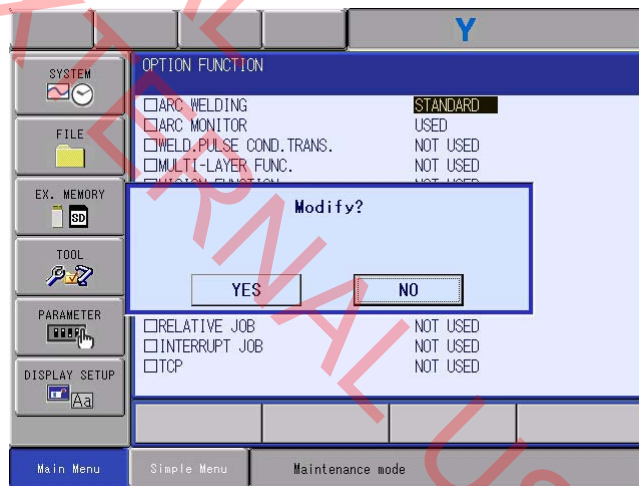
1. Select the setting item of "ARC WELDING".

– The selection dialog box appears.



2. Select the item of the selection dialog box.

– The confirmation dialog box of parameter change appears.

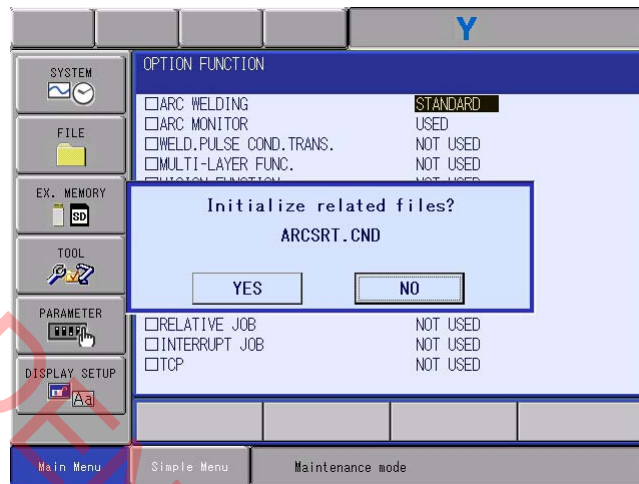


2 System Menu
2.2 Setup

3. Select {YES}.

- Select {YES} in the confirmation dialog, and the content chosen in the selection dialog will be automatically set to system parameters. Then, the system will automatically determine the necessity of the initialization of a relevant file, and show a message to confirm the execution of the initialization.

For instance, the following dialog appears.



4. Select {YES}.

- The OPTION FUNCTION window appears.

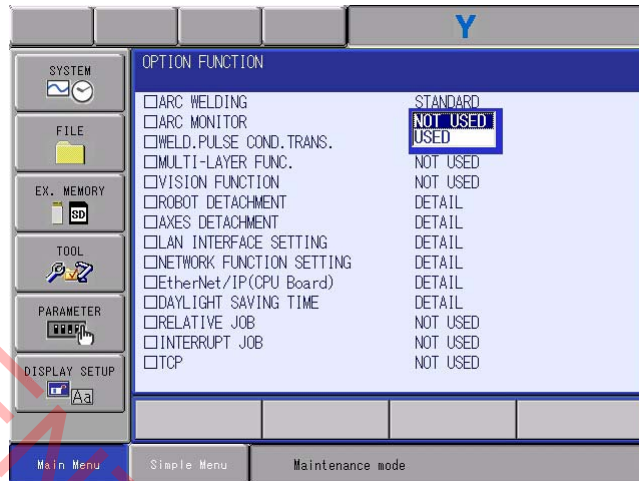
2.2.8.2 Arc Monitor Function

The arc monitor function can be set (changed) in OPTION FUNCTION window.

If the parameter has been set (changed), default parameter is set automatically.

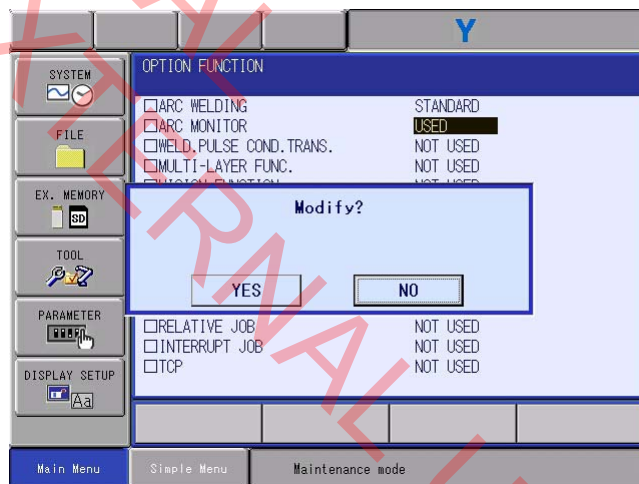
1. Select the setting item of "ARC MONITOR".

– The selection dialog box appears.



2. Select the item of the selection dialog box.

– The confirmation dialog box of parameter change appears.



3. Select {YES}.

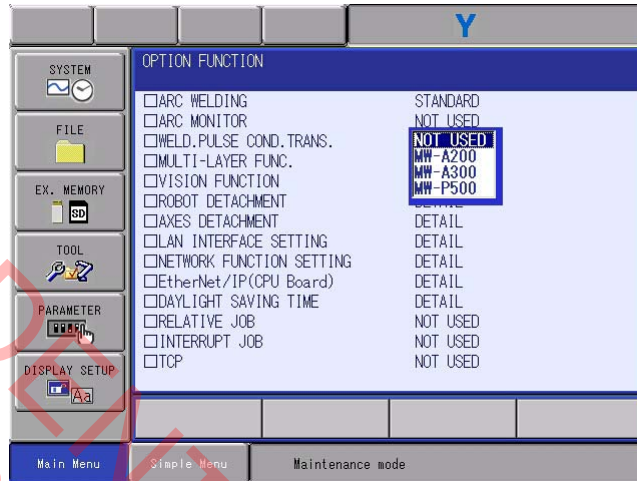
– The content chosen in the selection dialog will be automatically set to system parameters.

2 System Menu
 2.2 Setup

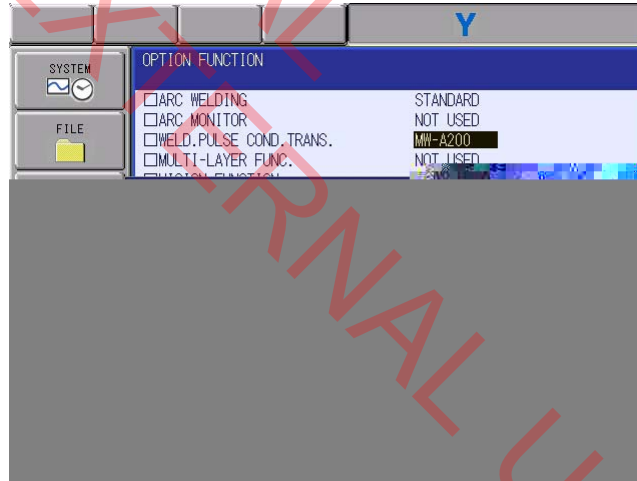
2.2.8.3 Welding Pulse Condition Transmission Function

The welding pulse condition transmission function can be set (changed) in OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "WELD. PULSE COND. TRANS.".
 - The selection dialog box appears.



2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.



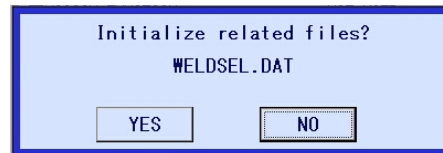
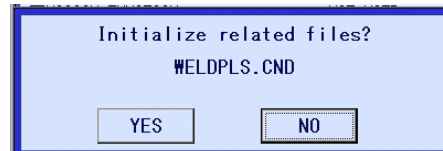
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2.2 Setup

3. Select {YES}.

- Select {YES} under the confirmation dialog. The content chosen in the selection dialog will be automatically set to system parameters.

When selecting another option rather than [NOT USED] in the selection dialog, the system will automatically determine the necessity of the initialization of a relevant file, and show a message to confirm the execution of the initialization.

The following dialogs appears in succession.



4. Select {YES}.

- The OPTION FUNCTION window appears.

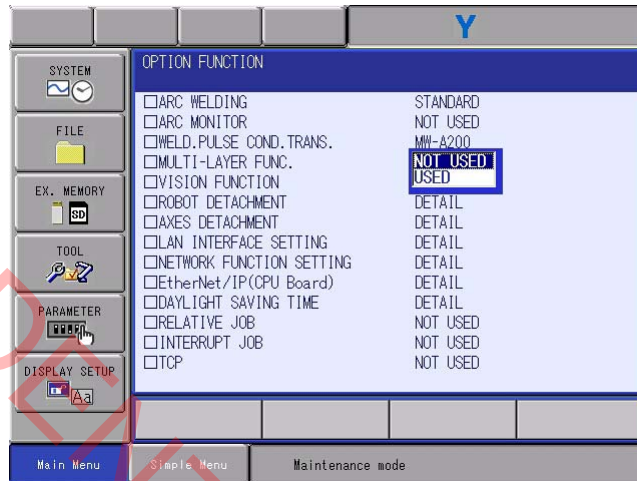
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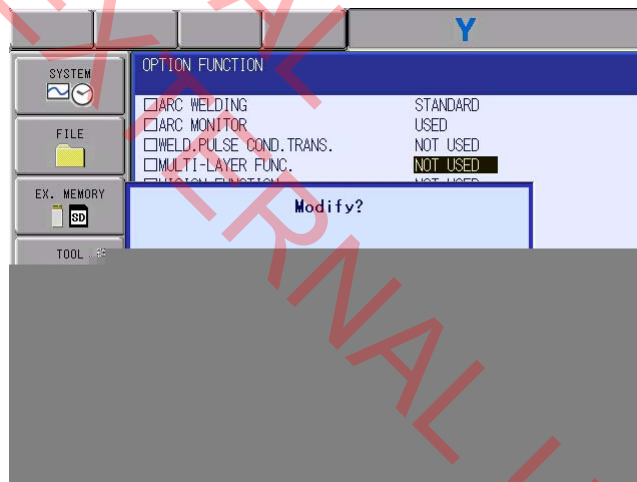
2.2.8.4 Multi Layer Function

The multi layer function can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "MULTI-LAYER FUNC.".
 - The selection dialog box appears.



2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.



3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

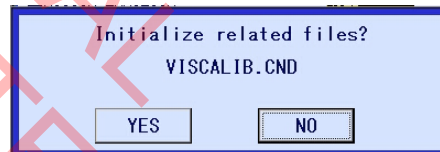
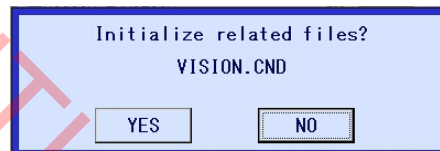
2.2.8.5 Vision Function

The vision function can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "VISION FUNCTION".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - Select {YES} under the confirmation dialog.

When selecting [USED] in the selection dialog, the system will automatically determine the necessity of the initialization of a relevant file, and show a message to confirm the execution of the initialization.

The following dialogs appears in succession.



4. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2 System Menu
2.2 Setup

2.2.8.6 Robot Detachment

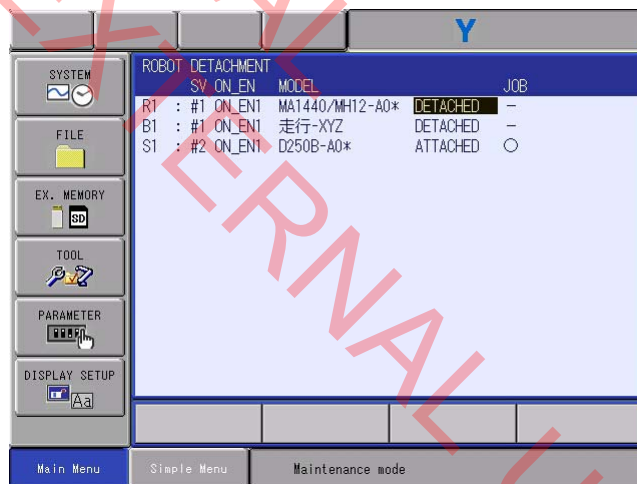
It is possible to set (or change) the robot detachment function on the DETAIL settings window of robot detachment. If the parameter has been set (changed), default parameter is set automatically.

1. Select "DETAIL" of "ROBOT DETACHMENT".

– The robot detachment setting window appears.



It is possible to change the content of the setting each time the [SELECT] is pressed.



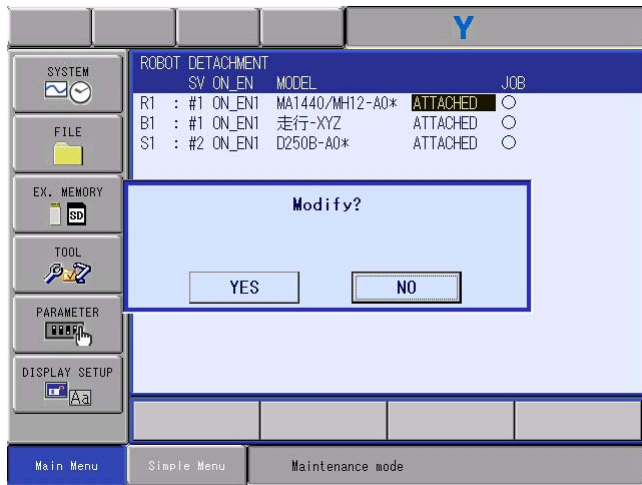
About the item of "JOB"

In case of “-” :	Jobs including a separated group(s) cannot be started.
In case of “O” :	Jobs including a separated group(s) can be started. Note, however, that separated axes cannot be operated.

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 2.2 Setup

2. Press [ENTER].

– The confirmation dialog box of parameter change appears.



3. Select {YES}.

– If {YES} is selected, the system parameter is set automatically, and then the OPTION FUNCTION window appears.

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2.2	Setup

2.2.8.7 Axes Detachment Function

For the axes detachment function, refer to "Chap. 8.29 Axes Detachment Function" in "YRC1000 INSTRUCTIONS (RE-CTO-A221)".

2.2.8.8 LAN Interface Function

For the LAN interface function, refer to YRC1000 OPTIONS INSTRUCTIONS for ETHERNET FUNCTION.

2.2.8.9 Network Function Setting

For the network function, refer to YRC1000 OPTIONS INSTRUCTIONS for ETHERNET FUNCTION.

2.2.8.10 EtherNet/IP (for CPU Board)

For the EtherNet/IP (for CPU Board), refer to YRC1000 OPTIONS INSTRUCTIONS ETHERNET/IP COMMUNICATION FUNCTION.

2.2.8.11 DAYLIGHT SAVING TIME

For the DAYLIGHT SAVING TIME function, refer to YRC1000 OPTIONS INSTRUCTIONS for ETHERNET FUNCTION.

2.2.8.12 Relative Job

The relative job can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "RELATIVE JOB".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.13 Interrupt Job

The interrupt job can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "INTERRUPT JOB".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.14 TCP

The TCP can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "TCP".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.15 Macro Instruction

The macro instructions job can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "MACRO INST.".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.16 Auto Backup

The auto backup can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "AUTO BACKUP".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

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2.2 Setup

2.2.8.17 I/F Panel

The I/F panel can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "I/F PANEL".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.18 Ladder Editor

The ladder editor can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "LADDER EDITOR".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.19 Play Mode Enable

The play mode enable can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "PLAY MODE ENABLE".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.20 Manual Brake Release

The manual brake release can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "MANUAL BRAKE RELEASE".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.21 External Reference Point

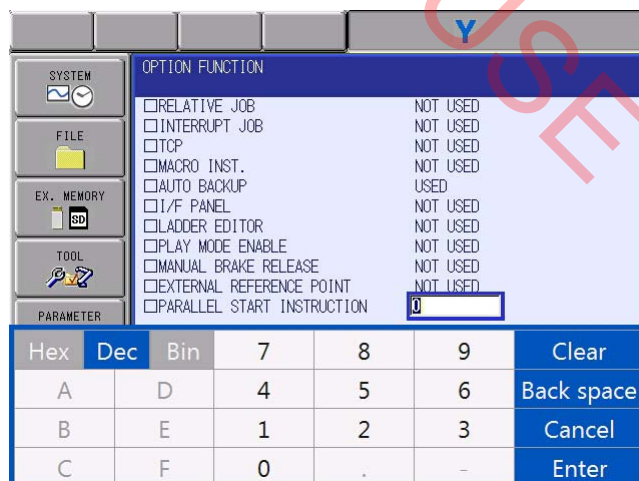
The external reference point can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "EXTERNAL REFERENCE POINT".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.22 Parallel Start Instruction

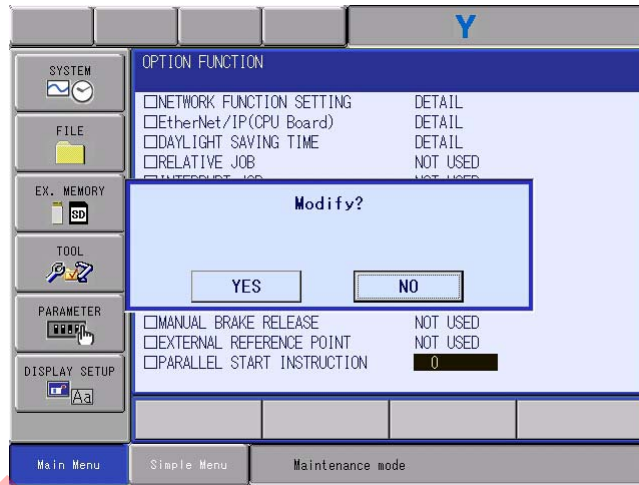
The parallel start instructions can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "PARALLEL START INSTRUCTION".
 - The input buffer line appears.



2 System Menu
 2.2 Setup

2. Input the number of variables and then press [ENTER].
 - The confirmation dialog box of parameter change appears.



3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters, the OPTION FUNCTION window appears.

2.2.8.23 Coordinated Instruction

The coordinated instructions can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "COORDINATED INSTRUCTION".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.24 Station Angle Display Function

The station angle display function can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "STATION ANGLE DISPLAY".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

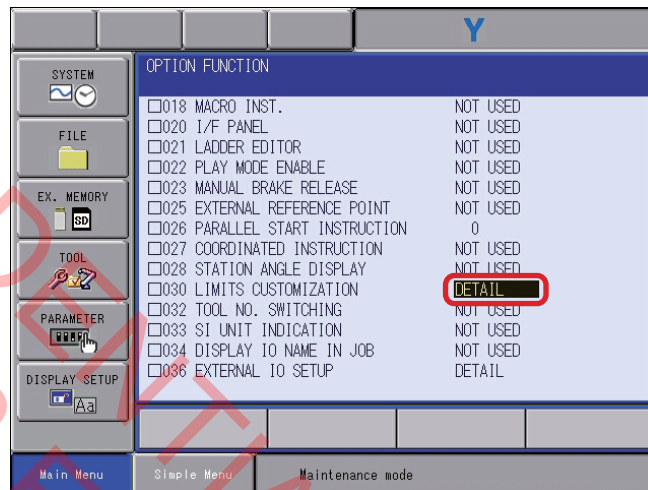
2 System Menu
2.2 Setup

2.2.8.25 Limits Customization Function

The limits customization function can be set or modified on the OPTION FUNCTION window. When the limits customization function is set, specified parameters will be automatically set.

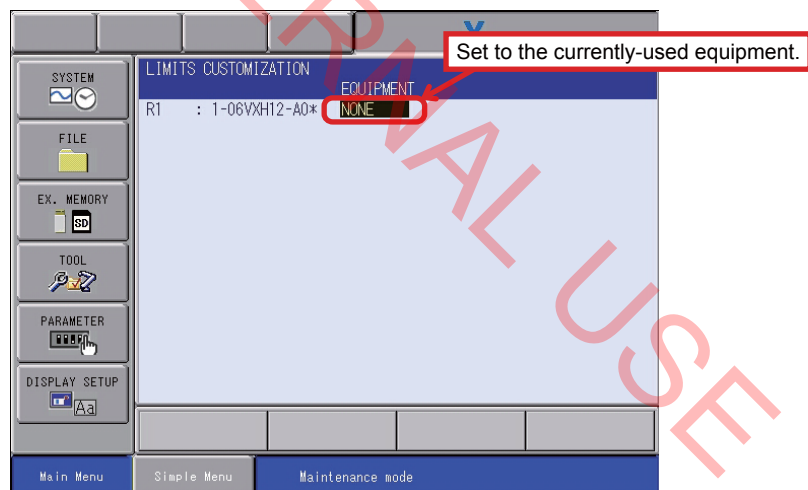
1. Select {SYSTEM} under the Main Menu, and then select {SETUP} - {OPTION FUNCTION}. The LIMITS CUSTOMIZATION window appears.

<Window example>



2. Set "EQUIPMENT" to the currently-used equipment, and then press [SELECT].

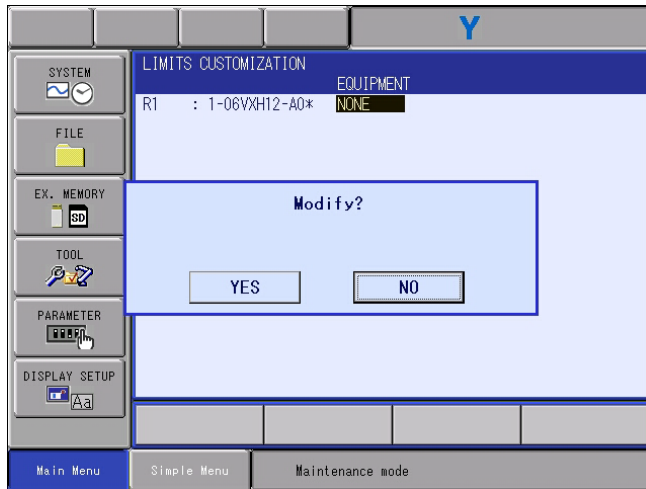
<Window example>



2 System Menu
 2.2 Setup

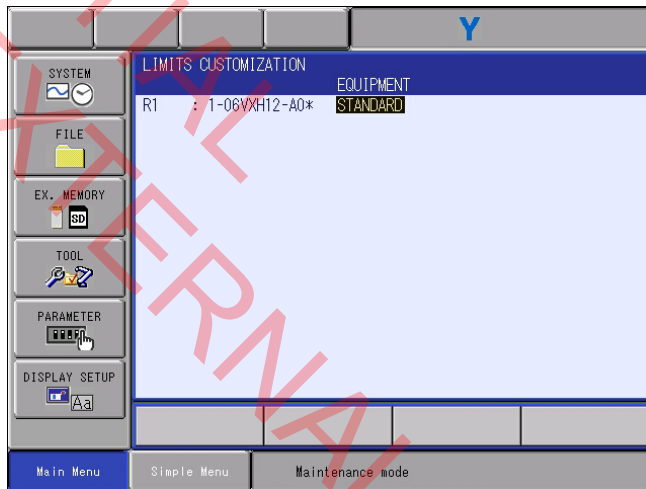
- The confirmation window “Modify?” appears. Select {YES}.

<Window example>



- The settings are automatically reflected to the system parameters, and the LIMITS CUSTOMIZATION window appears.

<Window example>



2 System Menu
2.2 Setup

2.2.8.26 Tool No. Switching

The tool No. switching can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "TOOL NO. SWITCHING".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.27 SI Unit Indication

The SI unit indication can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "SI UNIT INDICATION".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.28 Display User IO Name in Job

The display user IO name in job can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select the setting item of "DISPLAY USER IO NAME IN JOB".
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
 - The confirmation dialog box of parameter change appears.
3. Select {YES}.
 - The content chosen in the selection dialog will be automatically set to system parameters.

2.2.8.29 External IO Setting

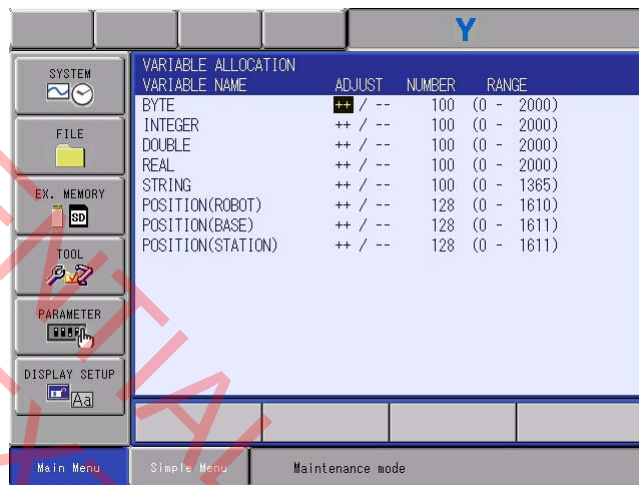
For the external IO setting function, refer to “Chap. 12.2 Allocating External I/O Signal” in “YRC1000 INSTRUCTIONS (RE-CTO-A221)”.

2.2.8.30 Variable Allocation

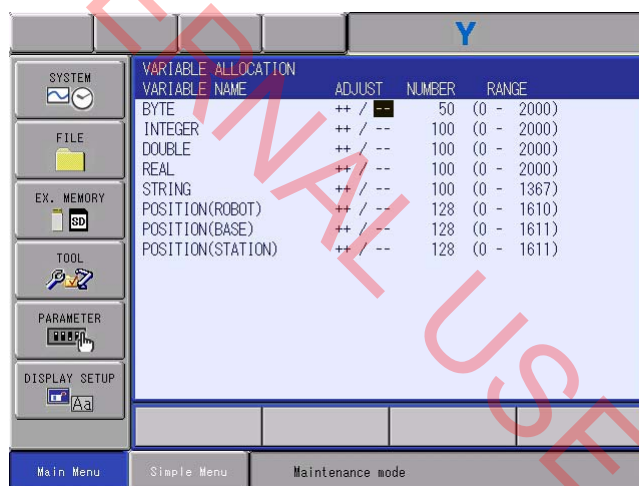
The variable allocation can be set (changed) on OPTION FUNCTION window. If the parameter has been set (changed), default parameter is set automatically.

1. Select “DETAIL” of “VARIABLE ALLOCATION”.

– The variable allocation setting window appears.



It is possible to change the quantity by selecting increase or decrease.



Increase or decrease in “quantity”

“++”: the quantity can be increased by 50.

The range values change in conjunction with the quantity.

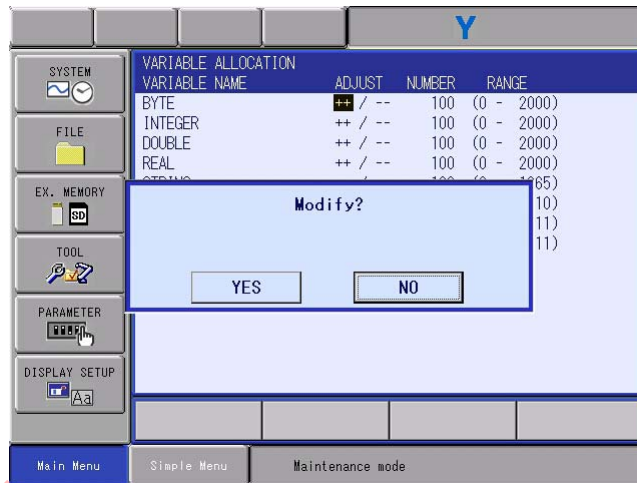
“- -”: the quantity can be decreased by 50.

The range values change in conjunction with the quantity.

2 System Menu
2.2 Setup

2. Press [ENTER].

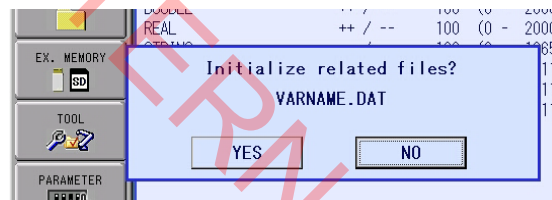
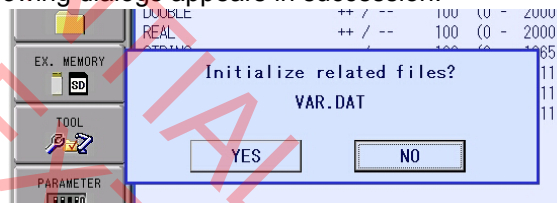
- The confirmation dialog box of parameter change appears.



3. Select {YES}.

- The system will automatically determine the necessity of the initialization of a relevant file, and show a message to confirm the execution of the initialization.

The following dialogs appears in succession.



4. Select {YES}.

- The content chosen in the selection dialog will be automatically set to system parameters.

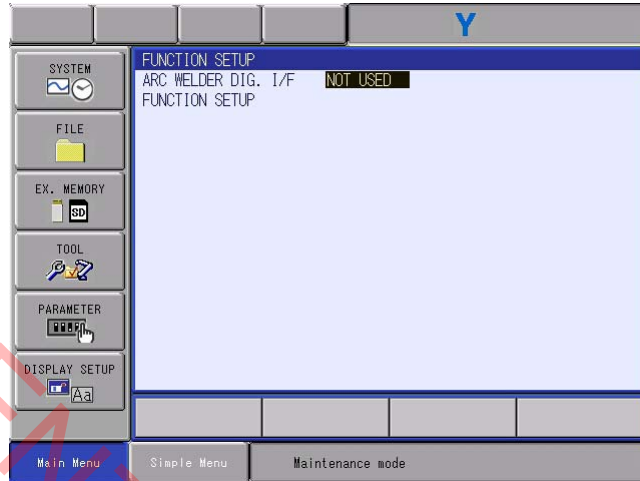
NOTICE

For the details of the setting fields, refer to the manual for each function.

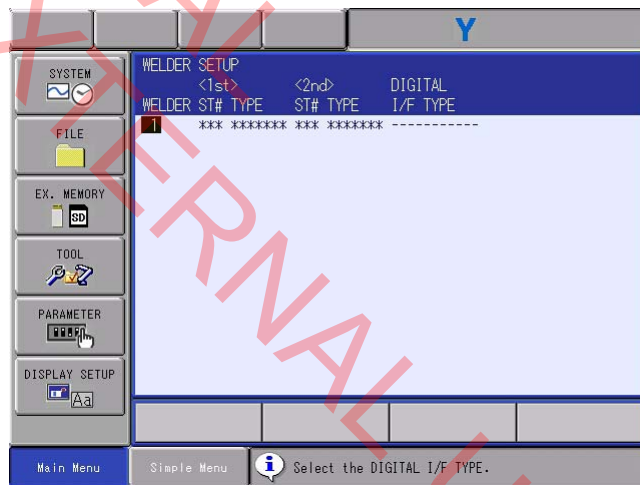
2.2.8.31 WELDCOM Function (Arc Digital I/F)

The WELDCOM function (Arc Digital I/F) can be set (changed) on the OPTION FUNCTION window. If the parameter is set (changed), the default parameter is set automatically.

1. Select "DETAIL" of "WELDCOM function (Arc Digital I/F)".
 - The WELDCOM function (Arc Digital I/F) of function setting window appears.



2. Select "USED".
 - The WELDER SETUP window appears.



2 System Menu
 2.2 Setup

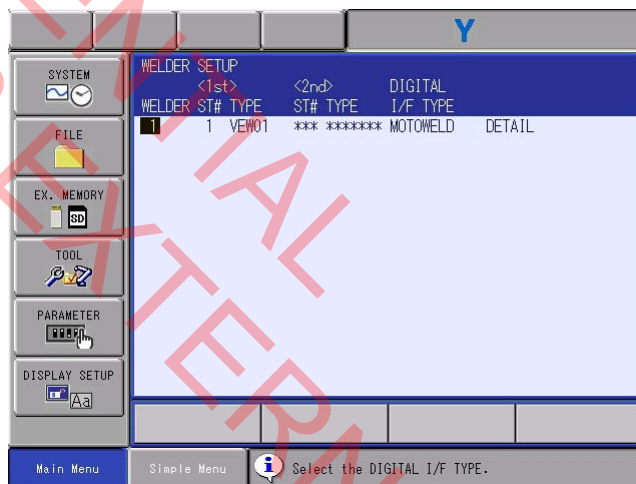
3. Select "WELDER".

– The dialog box for initializing a related file appears.



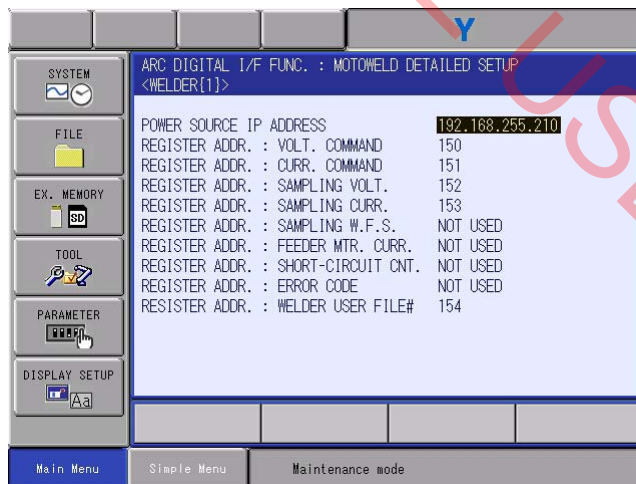
4. Select {YES}.

– DETAIL appears.



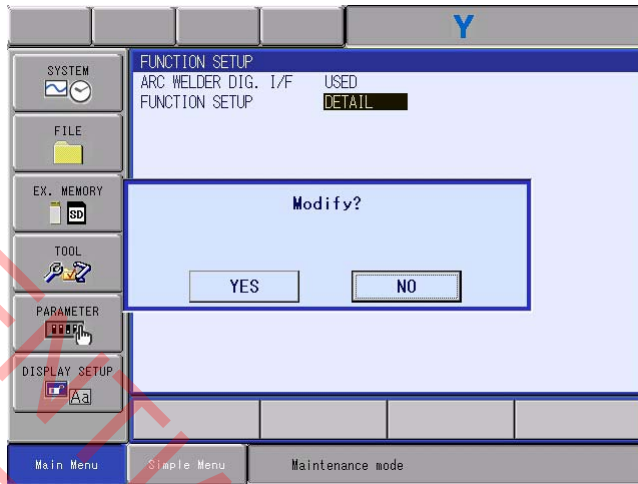
5. Select "DETAIL".

– The DETAIL window appears.

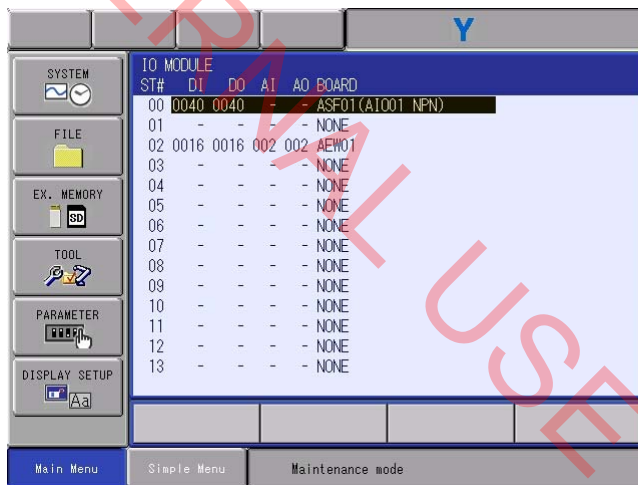


2 System Menu
 2.2 Setup

6. Input a number of value and then press [ENTER].
 - The value of the setting item changes.
7. Press [ENTER].
 - The WELDER SETUP window appears.
8. Press [ENTER].
 - The FUNCTION SETUP window appears.
9. Press [ENTER].
 - The parameter change confirmation dialog box appears.



10. Select {YES}.
 - The dialog box for initializing a related file appears.
11. Select {YES}.
 - The I/O MODULE window appears.

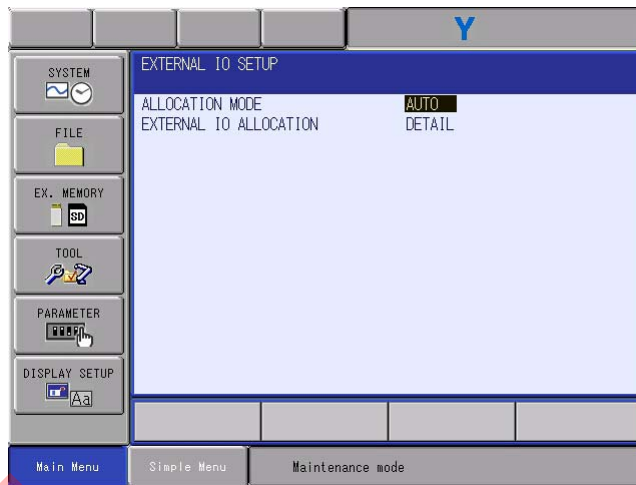


12. Press [ENTER].
 - The cursor will jump to ST#19.

2 System Menu
 2.2 Setup

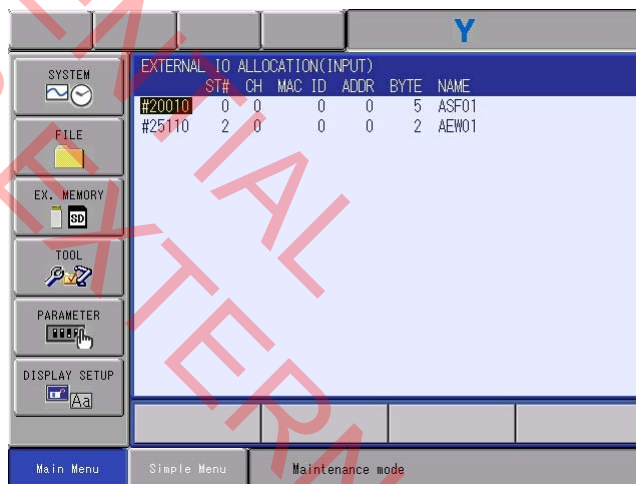
13. Press [ENTER].

– EXTERNAL IO SETUP window appears.



14. Press [ENTER] in the EXTERNAL IO SETUP window.

– EXTERNAL IO ALLOCATION(INPUT) window appears.



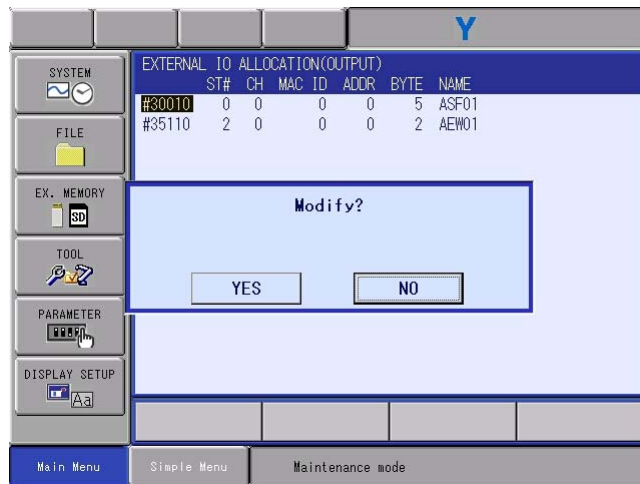
15. Press [ENTER] in the EXTERNAL IO ALLOCATION(INPUT) window.

– EXTERNAL IO ALLOCATION(OUTPUT) window appears.

2 System Menu
 2.2 Setup

16. Press [ENTER] in the EXTERNAL IO ALLOCATION(OUTPUT) window.

– The confirmation dialog box appears.



17. Select {YES}.

– The content chosen in the selection dialog box will be automatically set to the system parameter.

2.2.8.32 MotoPlus Function

For MotoPlus functions, refer to “YRC1000 NEW LANGUAGE ENVIRONMENT MotoPlus USER’S MANUAL”.

2.2.8.33 Automatic Backup (ACP01)

For automatic backup function, refer to “YRC1000 INSTRUCTIONS (RE-CTO-A221)”.

2.2.8.34 Function Safety

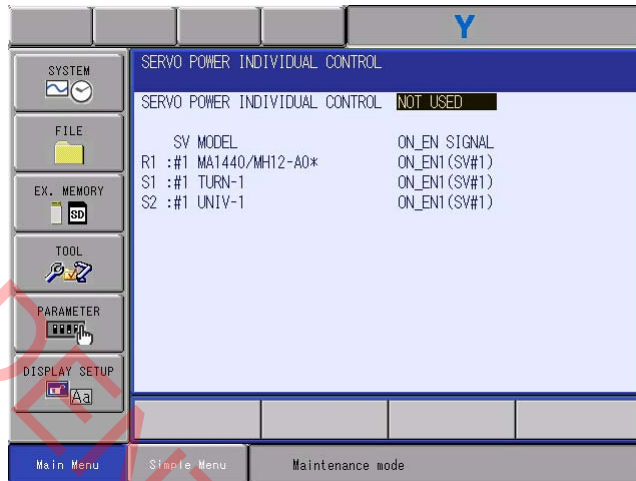
For Function Safety, refer to “RC1000 OPERATION MANUAL for Function Safety Unit”.

2 System Menu
2.2 Setup

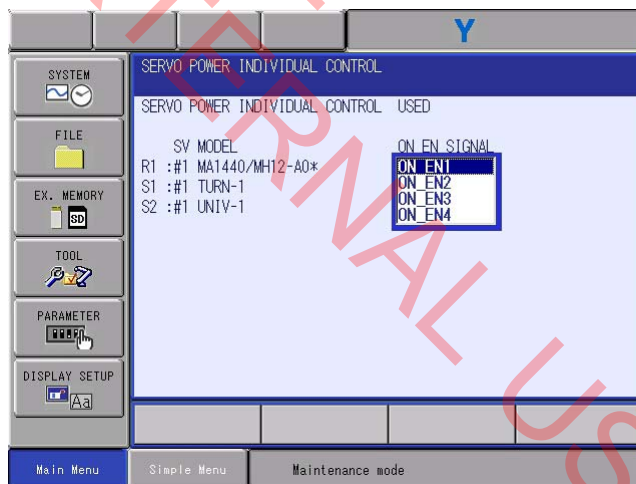
2.2.8.35 Servo Power Individual Control Function

The servo power individual control function can be set (or changed) in OPTION FUNCTION window. If the setting is set (or changed), the default parameter is set automatically.

1. Select "DETAIL" of the SERVO POWER INDIVIDUAL CONTROL.
 - Function setting window of the SERVO POWER INDIVIDUAL CONTROL appears, press [SELECT] of the programming pendant.



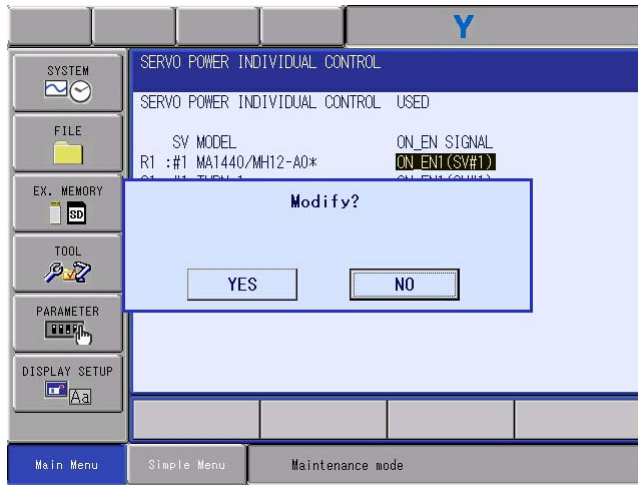
2. Select "USED".
 - Sets the SERVO POWER INDIVIDUAL CONTROL to "USED".
3. Set the ON_EN signal in each control group.
 - Set the ON_EN signal in each control group respectively.



2 System Menu
2.2 Setup

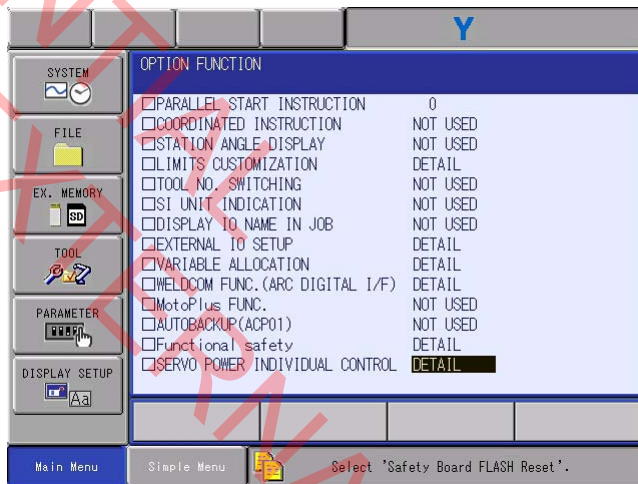
4. Press [ENTER].

– The confirmation dialog box appears.



5. Select {YES}.

– Select {YES} in the confirmation dialog box, the system parameter will be set automatically, and then the OPTION FUNCTION window appears.



6. Perform the safety board FLASH reset.

– The system parameter used in the safety board has been changed, thus, perform {FILE} - {INITIALIZE} - {Safety Board FLASH Reset}.

2.2.8.36 MotoFit

USED / NOT USED of the MotoFit function can be set in OPTION FUNCTION window. The setting contents is set automatically to the parameter.

1. Select the setting field of the MotoFit.

– The selection dialog box appears.

2. Select the item of the selection dialog box.

3. Select “USED / NOT USED”.

– The content chosen in the selection dialog box will be automatically set to the system parameter.

2	System Menu
2.2	Setup

2.2.8.37 MotomanSync

For the MotomanSync function, refer to the related manual of the MotomanSync.

2.2.8.38 Safety Logic Circuit Setting

For the safety logic circuit setting function, refer to “Chap. 8.26.13 Enable Switchlink Function” in “YRC1000 INSTRUCTIONS (RE-CTO-A221)”.

2.2.8.39 Safety IO Board Setting

For the safety IO Board setting function, refer to “Chap. 8.26.7 General Safety I/O Signal Setting” in “YRC1000 INSTRUCTIONS (RE-CTO-A221)”.

2.2.8.40 PFL Function

The window is that Valid / Invalid for the PFL function can be set in OPTION FUNCTION window. The setting contents is set automatically to the parameter.

2.2.8.41 3D Graphic Display

USED / NOT USED of the 3D graphic function can be set in OPTION FUNCTION window. The setting contents is set automatically to the parameter.

1. Select the setting field of the 3D graphic.
 - The selection dialog box appears.
2. Select the item of the selection dialog box.
3. Select “USED / NOT USED”.
 - The content chosen in the selection dialog box will be automatically set to the system parameter.

2.2.8.42 Endless Function

For the endless function, refer to “YRC1000 OPTIONS INSTRUCTIONS FOR ENDLESS FUNCTION”.

2.2.8.43 Spot Monitor Function

For Spot Monitor Function, refer to “YRC1000 OPERATOR’S MANUAL FOR SPOT WELDING USING MOTOR GUN”.

2.2.8.44 Spot High Speed Specification

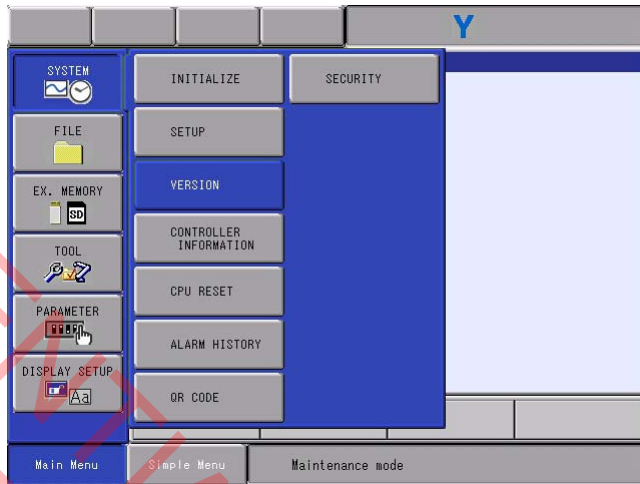
For Spot High Speed Specification, refer to “Chap.9.13” in “YRC1000 OPERATOR’S MANUAL FOR SPOT WELDING USING MOTOR GUN”.

2.3 Version

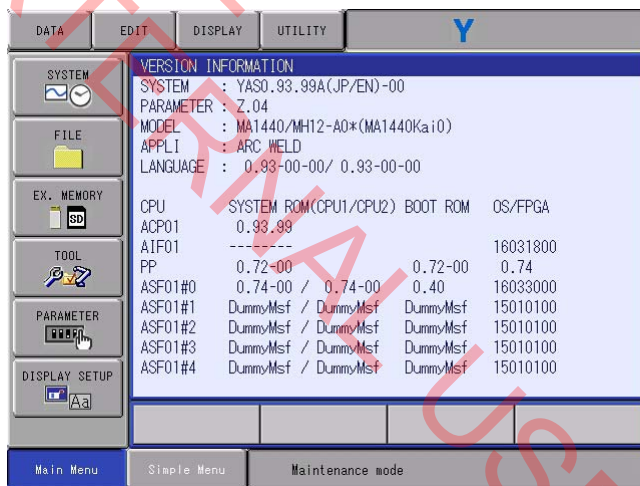
2.3.1 Version Confirmation

With the following operation, the version information of software for each board can be checked.

1. Select {SYSTEM} under the main menu.
 - {INITIALIZE}, {SETUP}, {VERSION}, {ALARM HISTORY}, and {SECURITY} appears.

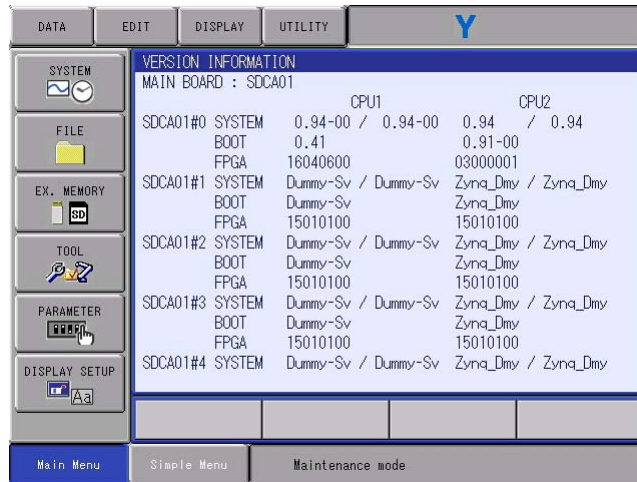


2. Select {VERSION}.
 - The VERSION INFORMATION window appears.



2 System Menu
 2.3 Version

– In the case of multiple pages, the display can be switched to the other page by pressing the [PAGE]



(When the ACP02-E board is Mounted)

NOT FOR CONFIDENTIAL EXTERNAL USE

2	System Menu
2.4	Alarm

2.4 Alarm

For Alarm, refer to "Chap.8. Alarm" in "YRC1000 MAINTENANCE MANUAL (RE-CHO-A114)".

2.5 Alarm History

For Alarm History, refer to "Chap.7.5 Alarm History" in "YRC1000 MAINTENANCE MANUAL (RE-CHO-A114)".

2.6 Data Rebuild

For Data Rebuild, refer to "Chap.6. Data Rebuild Procedure in Maintenance Mode" in "YRC1000 UPGRADE PROCEDURE MANUAL".

2.7 QR Code

For the QR code, refer to YRC1000 GENERAL OPERATOR'S MANUAL (RE-CSO-A051).

NOT FOR EXTERNAL USE

2 System Menu
2.8 CPU Reset

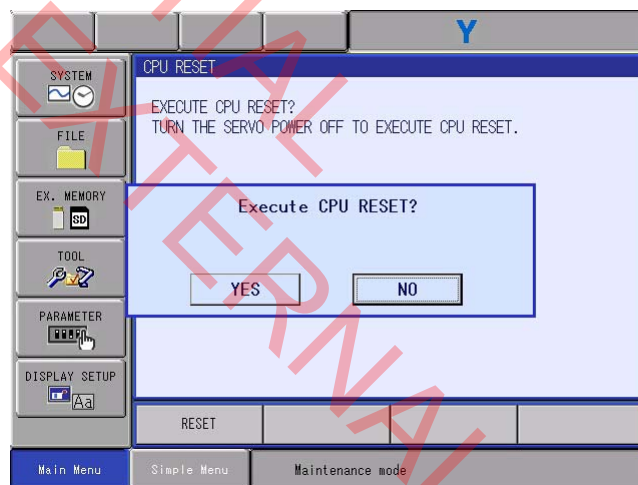
2.8 CPU Reset

For the YRC1000, by operating the programming pendant, the power can be turned OFF and ON.

1. Select [Main Menu] - [SYSTEM] - [CPU RESET].
– CPU RESET window appears.



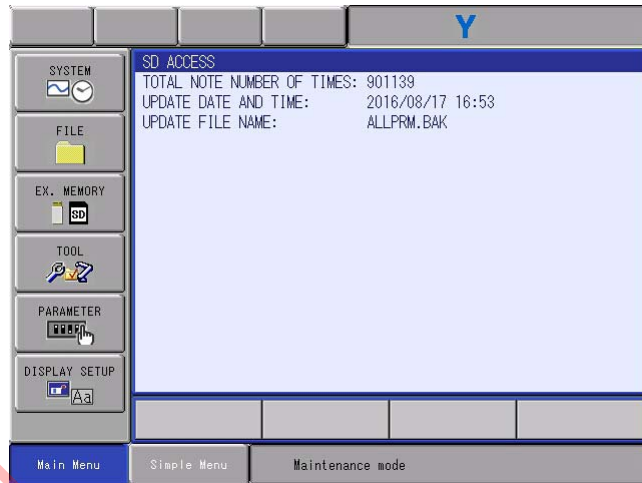
2. Select {RESET}.
– The confirmation dialog box appears.



3. Select {YES}.
Turning the YRC1000 power OFF and ON is available.

2.9 SD Access

For the SD card which is mounted to ACP01 board of the YRC1000, the note number of times, the update date and time, and the latest updated file name are displayed.



2.10 Security

2.10.1 Protection Through Security Mode Settings

The YRC1000 modes setting are protected by a security system.

The system allows operation and modification of settings according to operator clearance.

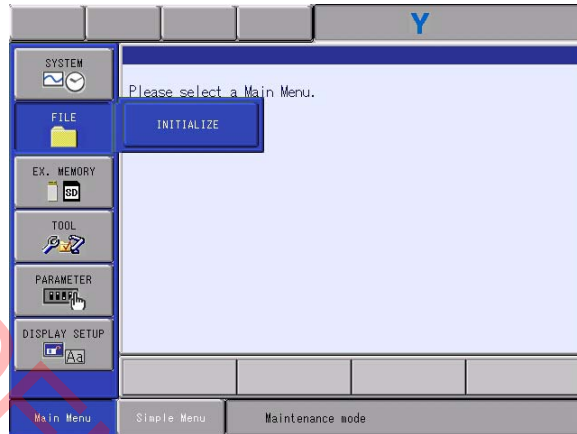
Be sure operators have the correct level of training for each level to which they are granted access.

For details, refer to "Chap.2 Security System" in "YRC1000 MAINTENANCE MANUAL (RE-CHO-A114)".

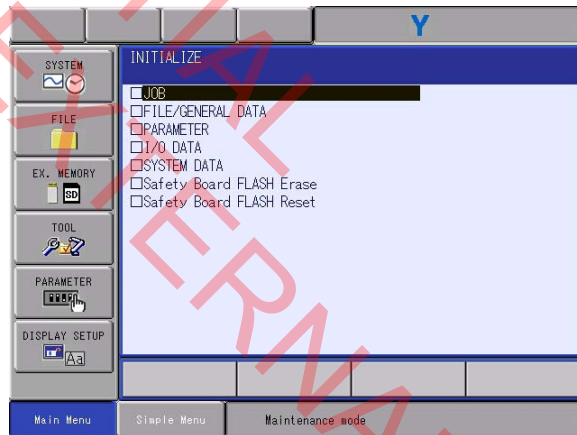
3 File Menu

Select {FILE} under the main menu to initialize a file.

1. Select {FILE} under the main menu.
 - The {INITIALIZE} button appears.



2. Select {INITIALIZE}.
 - The INITIALIZE window appears.



The items marked with "■" cannot be selected.

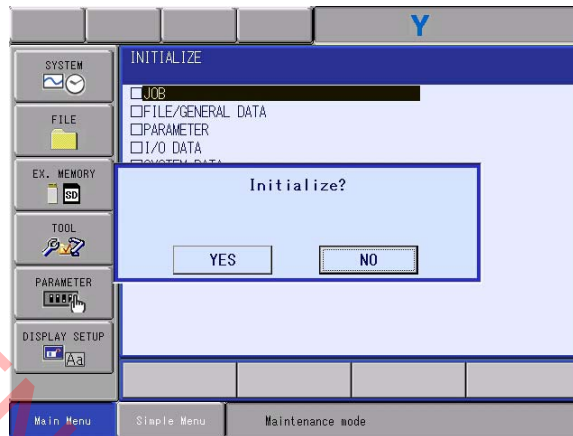
- 3 File Menu
- 3.1 File Initialize

3.1 File Initialize

It is possible to initialize each field shown on the INITIALIZE window.

3.1.1 Initializing Job File

1. Select {JOB} under the INITIALIZE window.
 - The confirmation dialog box appears.

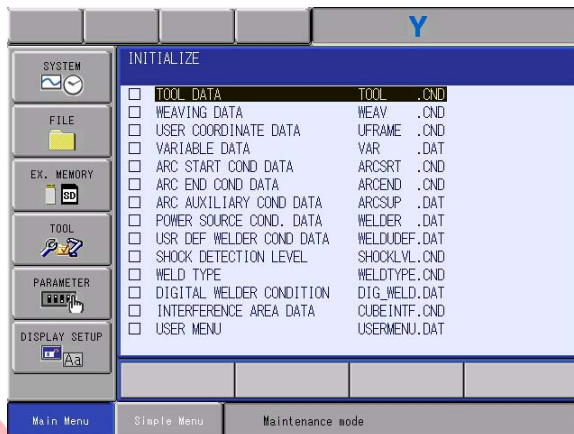


2. Select {YES}.
 - The job data is initialized.

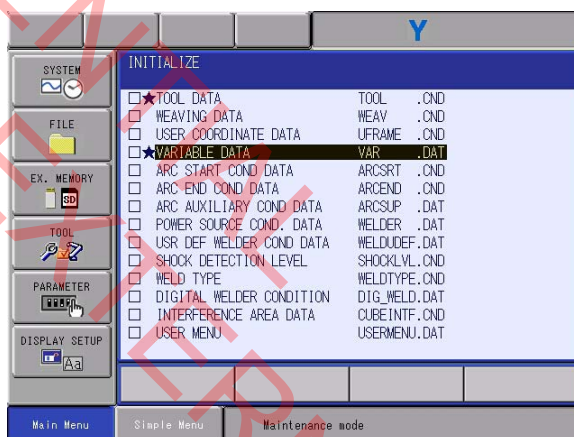
3 File Menu
 3.1 File Initialize

3.1.2 Initializing Condition File / General Data

1. Select {FILE/GENERAL DATA} under the INITIALIZE window.
 - The INITIALIZE window appears.
 This window appears when the arc application is selected.

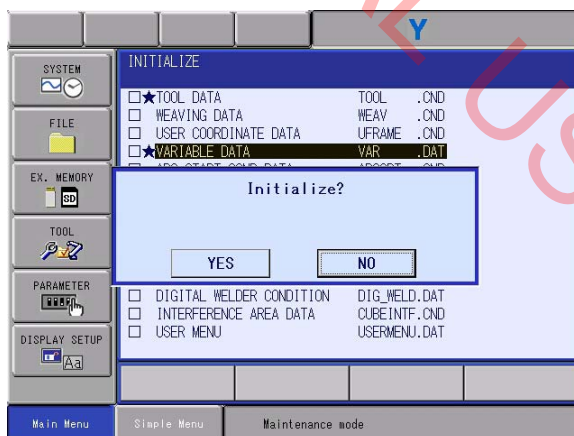


2. Select the data file to be initialized.
 - The selected condition file/general data are marked with “★”.



The file/data marked with "■" cannot be selected.

3. Press [ENTER].
 - The confirmation dialog box appears.



4. Select {YES}.
 - The selected condition file/general data are initialized.

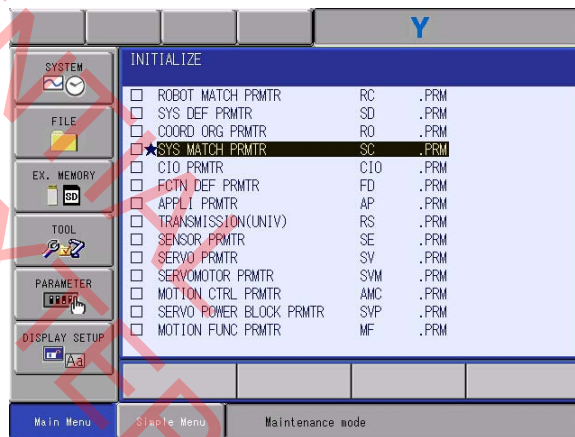
3 File Menu
 3.1 File Initialize

3.1.3 Initializing Parameter File

1. Select {PARAMETER} under the INITIALIZE window.
 - The parameter selection window appears.

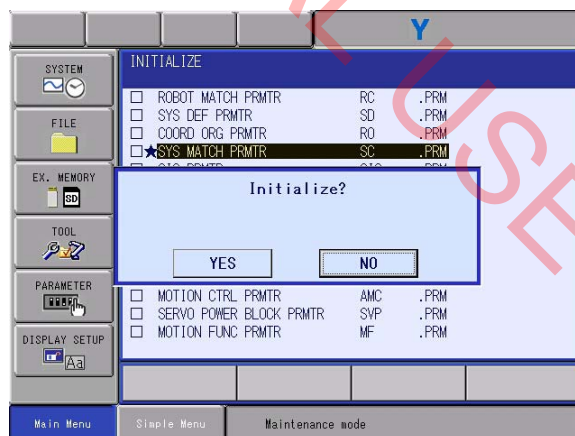


2. Select the parameter to be initialized.
 - The selected parameter is marked with “★”.



The file/data marked with "■" cannot be selected.

3. Press [ENTER].
 - The confirmation dialog box appears.

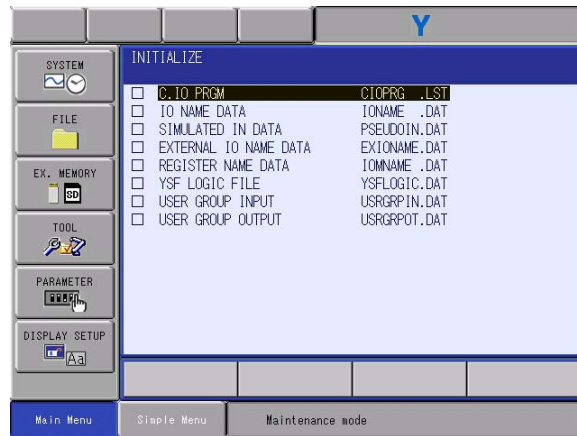


4. Select {YES}.
 - The selected parameter is initialized.

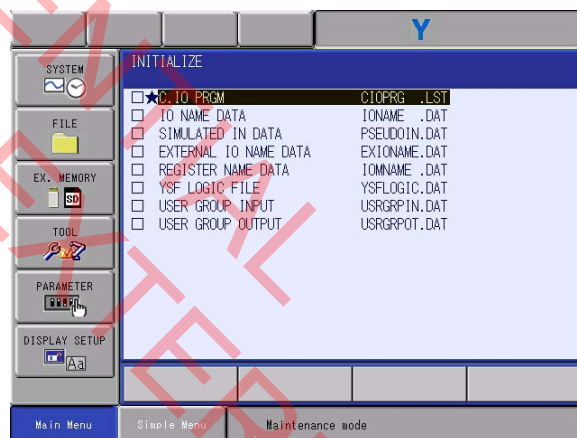
3 File Menu
 3.1 File Initialize

3.1.4 Initializing I/O Data

1. Select {I/O DATA} under the INITIALIZE window.
 - The I/O data selection window appears.

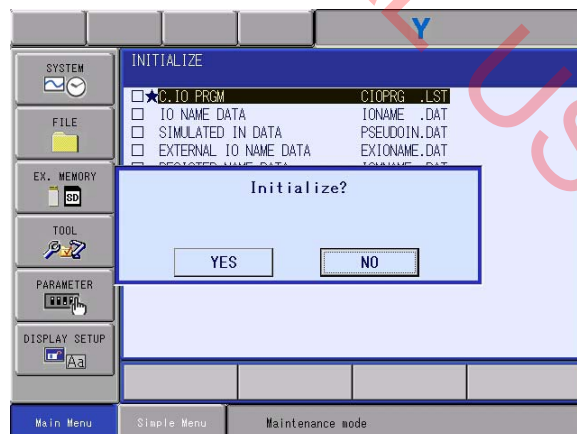


2. Select data to be initialized.
 - The selected data is marked with "★".



The file/data marked with "■" cannot be selected.

3. Press [ENTER].
 - The confirmation dialog box appears.



4. Select {YES}.
 - The selected data is initialized.

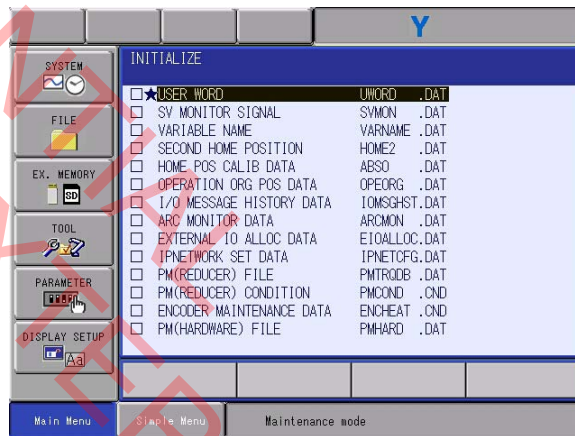
3 File Menu
 3.1 File Initialize

3.1.5 Initializing System Data

1. Select {SYSTEM DATA} under the INITIALIZE window.
 - The system data selection window appears.

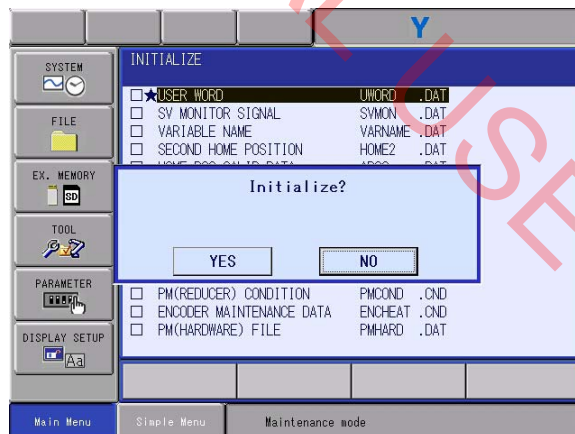


2. Select data to be initialized.
 - The selected data is marked with "★".



The file/data marked with "■" cannot be selected

3. Press [ENTER].
 - The confirmation dialog box appears.



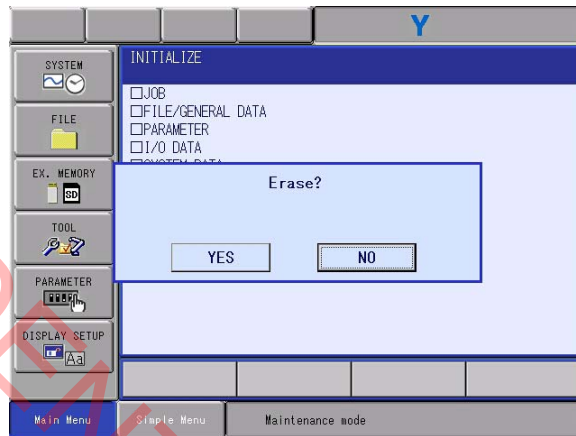
4. Select {YES}.
 - The selected data is initialized.

- 3 File Menu
- 3.2 Safety Board FLASH Erase

3.2 Safety Board FLASH Erase

This function can be used to erase the contents of the FLASH data mounted on the safety board. Normally, perform the safety board FLASH reset described in *chapter 3.3 "Safety Board FLASH Reset"*. If an error occurs during the safety board FLASH reset, perform the safety board FLASH erase.

1. Select the Safety Board FLASH Erase.
 - The confirmation dialog box appears.



2. Select [YES].
 - The contents of the FLASH data mounted on the safety board will be erased.

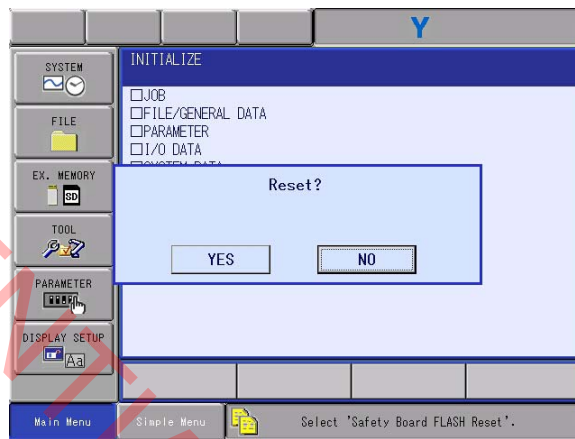


After completion of the safety board FLASH erase, make sure to perform the safety board FLASH reset.

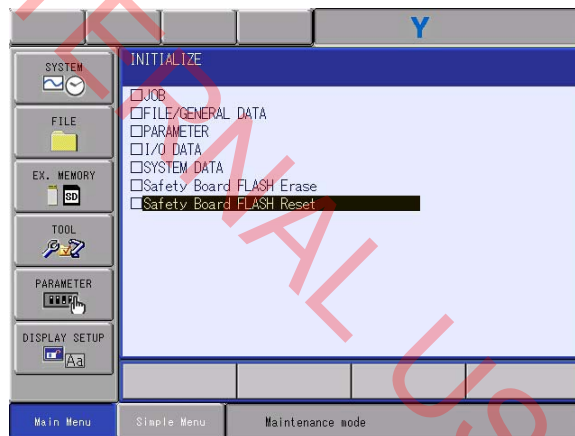
3.3 Safety Board FLASH Reset

The safety board FLASH reset is performed to transmit of the parameter and the file which are used with the safety board, and to write them to the FLASH ROM. If the parameter or the file used in the safety board is changed, the message, "Select 'Safety Board FLASH Reset'." appears on the message area of the programming pendant, and then perform the 'Safety Board FLASH Reset'. When the safety board FLASH reset processing is completed, the message displayed on the programming pendant will disappear.

1. Select the Safety Board FLASH Reset.
 - The confirmation dialog box appears.

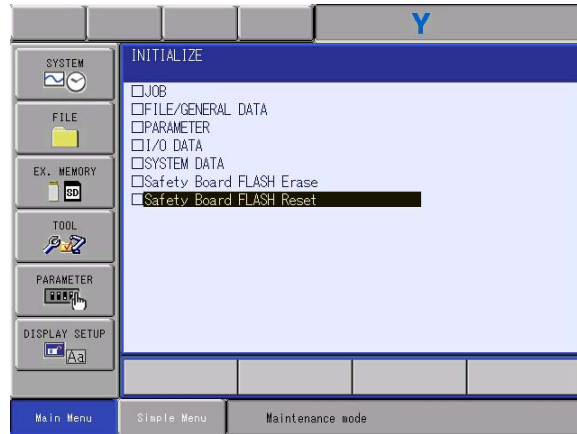


2. Select [YES].
 - The contents of the FLASH data mounted on the safety board will be updated.



3 File Menu
 3.3 Safety Board FLASH Reset

- When the safety board FLASH reset processing is completed, the message displayed on the programming pendant will disappear.

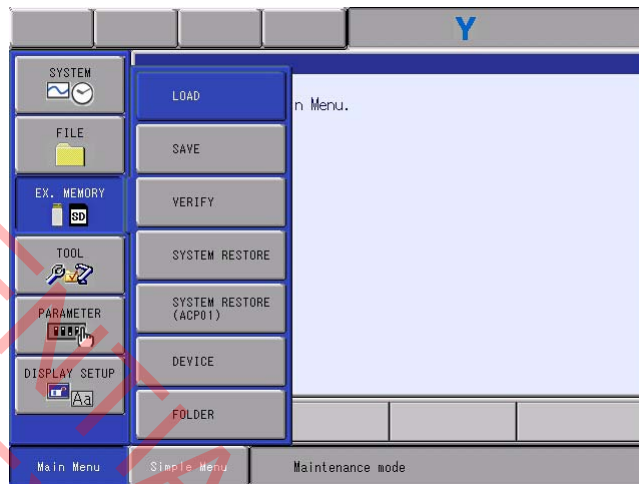


4 External Memory

If {EX. MEMORY} is selected in the main menu, useful functions for various kinds of maintenance will be available.

This manual explains {DEVICE}, {FOLDER}, {SAVE}, {LOAD}, {SYSTEM RESTORE}, and {SYSTEM RESTORE (ACP01)} in the external memory menu in this order.

{SYSTEM RESTORE (ACP01)} is an optional function that is displayed when automatic backup (ACP01) is set to be used.



The availabilities of the security mode and the external memory menu are shown as follows.

○: Available ×: Not available

Security	LOAD	SAVE	SYSTEM RESTORE	DEVICE	FOLDER
OPERATION	×	○	×	○	○
EDIT	×	○	×	○	○
MANAGEMENT	○	○	○	○	○
SAFETY	○	○	○	○	○
YASKAWA	○	○	○	○	○

SD cards and USB memories can be used for external memories for YRC1000. With the automatic backup function, however, that an USB memory cannot be used with the automatic backup function.

4 External Memory

For SD card cards and USB memory devices, refer to "Chap.9.1.2 Device" in "YRC1000 INSTRUCTIONS (RE-CTO-A221)".

In order to save the batch data(CMOS.BIN), the following free space per file is needed in the media.

When using JANCD-AIF01-1E: 30 MByte

When using JANCD-AIF01-2E: 32 MByte

When using JANCD-AIF01-3E: 32 MByte

Note that the free space for one working file is needed in addition to the free space for the stored files when using the automatic backup function.

YASKAWA recommends that the data be saved in two or more SD card to minimize problems if the SD card should be damaged.

A black speech bubble icon with the word "NOTE" in white capital letters.

The water-proof function of the pendant is not effective while the USB memory is connected.

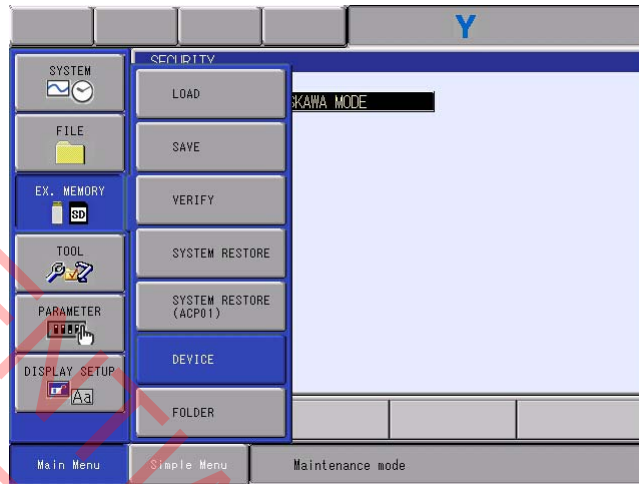
If USB memory is connected constantly, there is a risk it drops off.

Use SD card if there is no measures to maintain water-proof function or to prevent USB memory from drop-ping off.

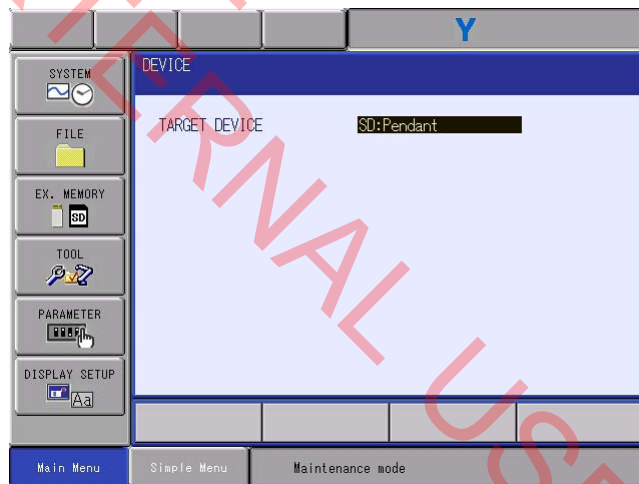
4.1 Device

In {DEVICE}, a SD card and a USB memory can be selected as an external memory for YRC1000.

1. Change the security mode to any mode assigned by the user.
 - The device is available with all security modes.
2. Select {EX. MEMORY} under the main menu.
 - {DEVICE} is displayed for the sub menu.

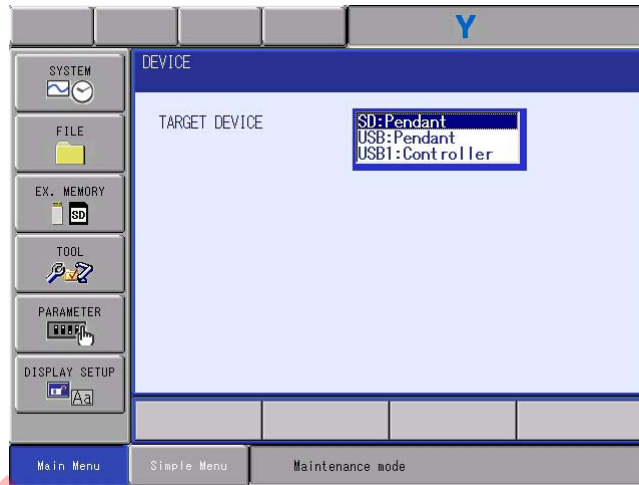


3. Select {DEVICE}.
 - The DEVICE window appears.

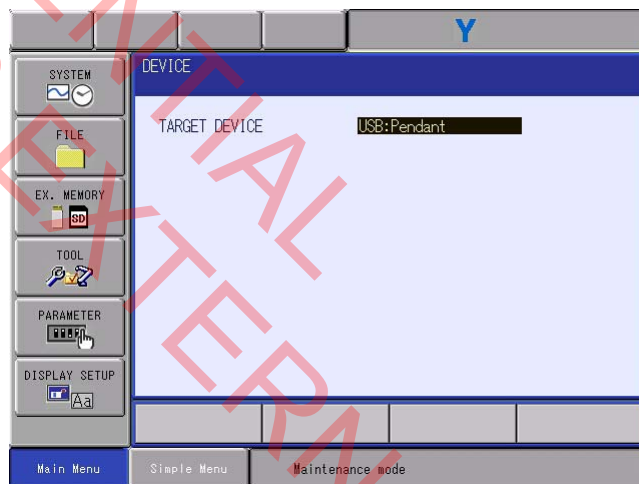


4 External Memory
 4.1 Device

4. Select the target device.
 - The selection dialog box is shown.



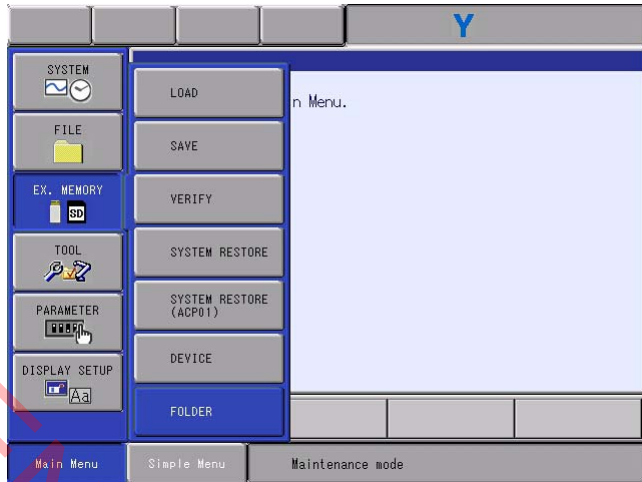
5. Select the target device from “SD: Pendant”, “USB: Pendant”, or “USB1: Controller”.
 - The selected contents will be reflected to the target device.



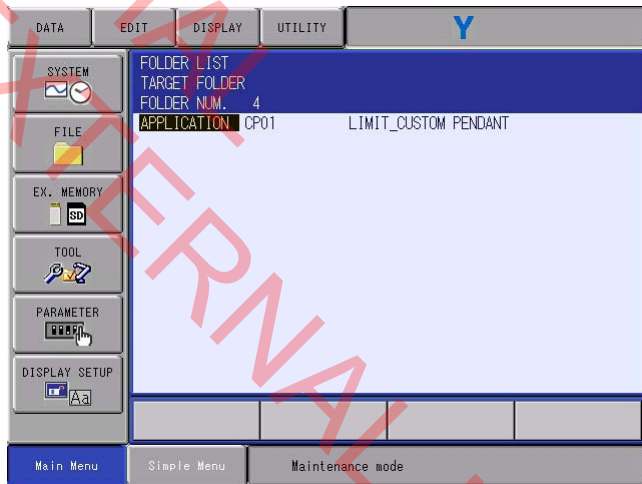
4.2 Folder

Folders in the selected device can be created, selected, or deleted.

1. Select {EX. MEMORY} under the main menu.
 - {FOLDER} is displayed for the sub menu.



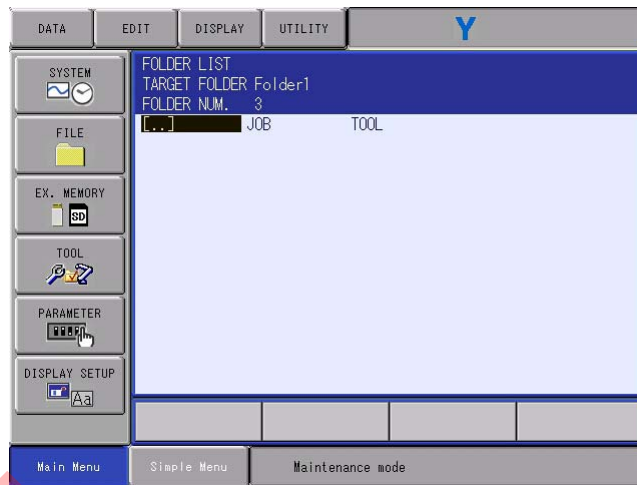
2. Select {FOLDER}.
 - The FOLDER LIST windows appears.



4 External Memory
 4.2 Folder

3. Select the folder to use.

- What is in the selected folder will be displayed.



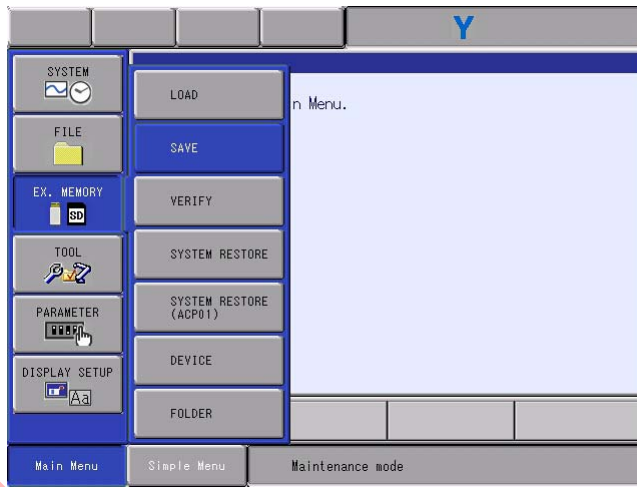
Select [..] to move to the higher hierarchy.

4. Create and Delete Folders

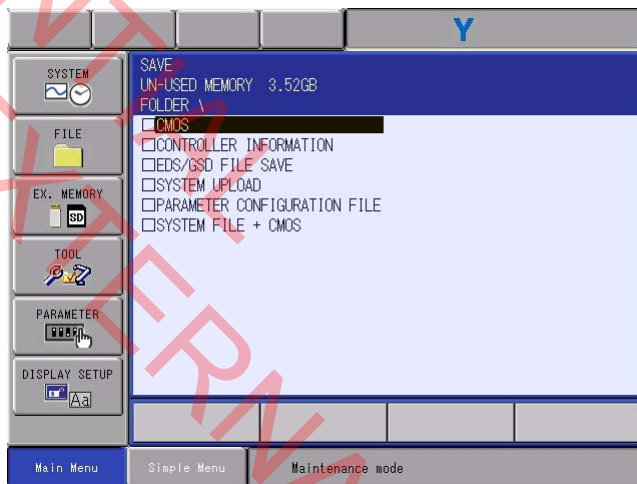
- For creating and deleting folders, refer to "Chap.7.3.0.1 Folder Operation" in "YRC1000 INSTRUCTIONS (RE-CTO-A221)".

4.3 Save

1. Select {EX. MEMORY} under the main menu.
 - {SAVE} is displayed for the sub menu.



2. Select {SAVE}.
 - The SAVE window appears.

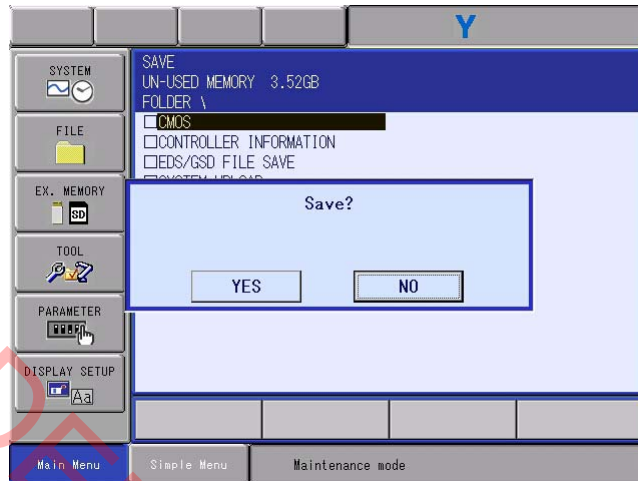


4 External Memory
 4.3 Save

4.3.1 Saving CMOS

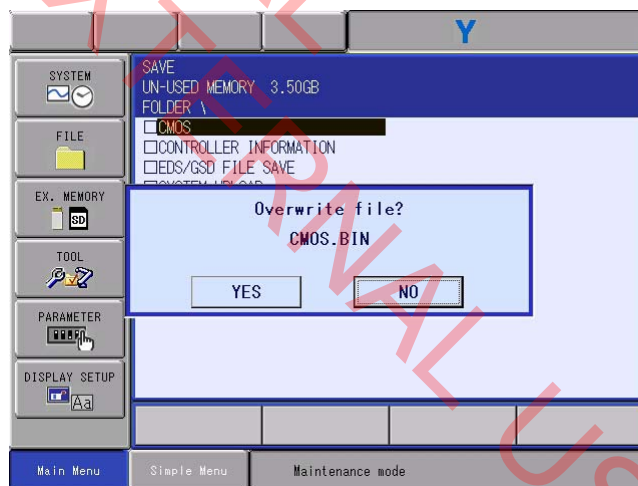
CMOS data (file name: CMOS.BIN) can be saved in SD card or USB memory.

1. Select {CMOS} under the SAVE window.
 - The confirmation dialog box appears.



2. Select {YES}.
 - Select {YES} to save the CMOS data into the SD card or USB memory.

When saving the file, if the CMOS.BIN file already exists in the SD card or USB memory, the following confirmation dialog box appears.



3. Select {YES}.
 - The CMOS.BIN file is overwritten in the SD card or USB memory.

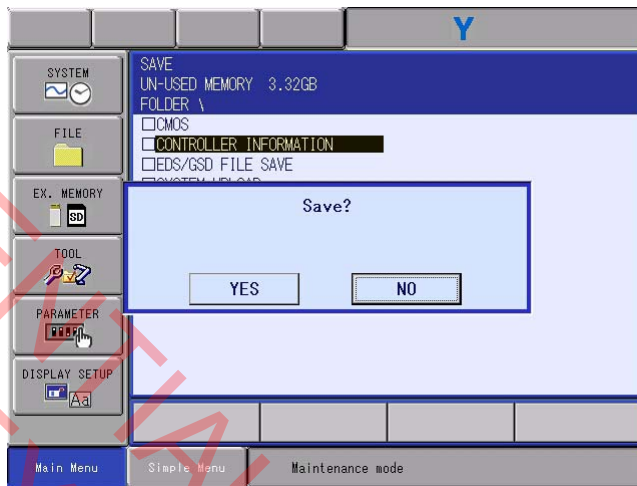
4.3.2 Saving Controller Information

Controller information (PANELBOX.TXT) can be saved in SD card or USB memory.

Setting data relating to models, control groups and usages can be saved.

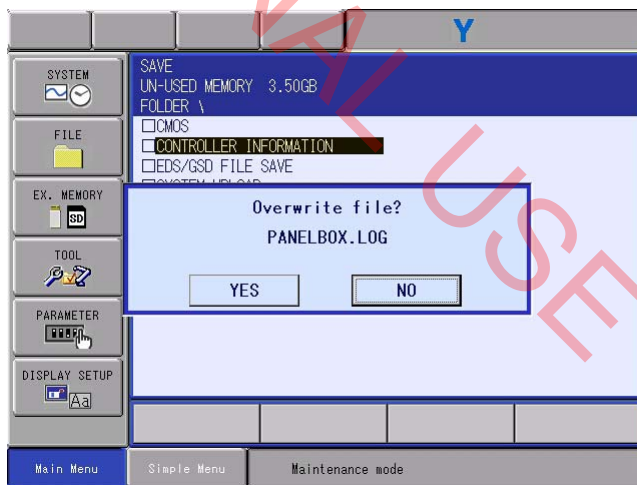
Previously, if the upgraded version was not compatible with CMOS, it was necessary to execute the initialization of CMOS on the maintenance window, or to take notes of the settings on the maintenance window and configure the system again while referring to the notes after upgrading. But the new version is improved in these respects.

1. Select {CONTROLLER INFORMATION} under the SAVE window.
 - The confirmation dialog box appears.



2. Select {YES}.
 - Select {YES} to save the PANELBOX.TXT file into the SD card or USB memory.

When saving the file, if the PANELBOX.TXT file already exists in the SD card or USB memory, the following confirmation dialog box appears.



3. Select {YES}.
 - The PANELBOX.TXT file is overwritten in the SD card or USB memory.

4 External Memory

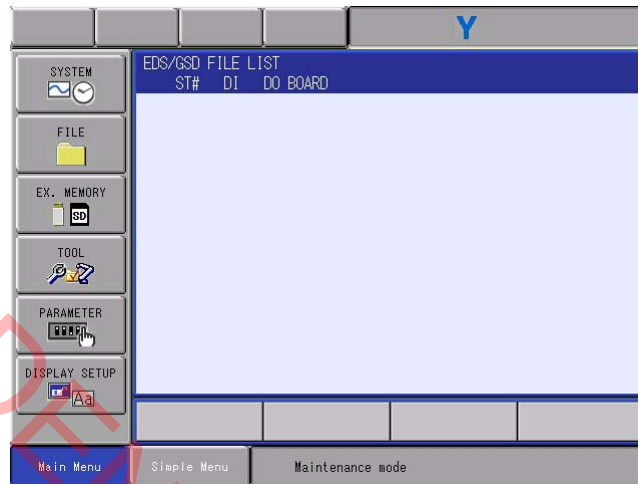
4.3 Save

4.3.3 Saving EDS File

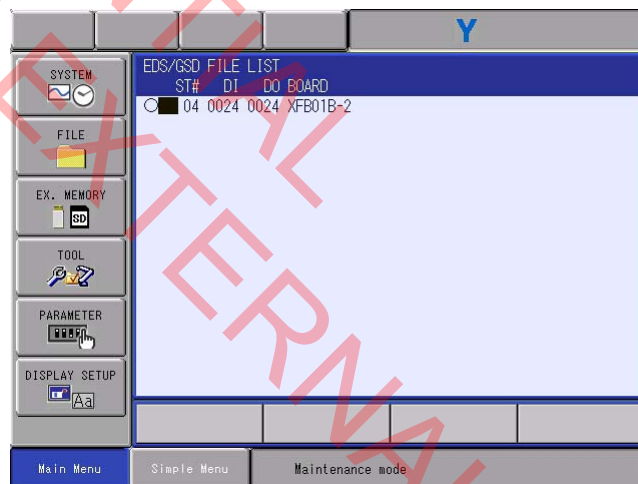
EDS file of each board can be saved in SD card or USB memory.

1. Select {EDS FILE SAVE} under the LOAD window.
 - The EDS FILE LIST window appears.

- The board with the EDS file is not connected



- The board with the EDS file is connected



(The diagram above shows a case where the "XFB01B-2" board is connected.)

4 External Memory
 4.3 Save

2. Select the file to be saved.

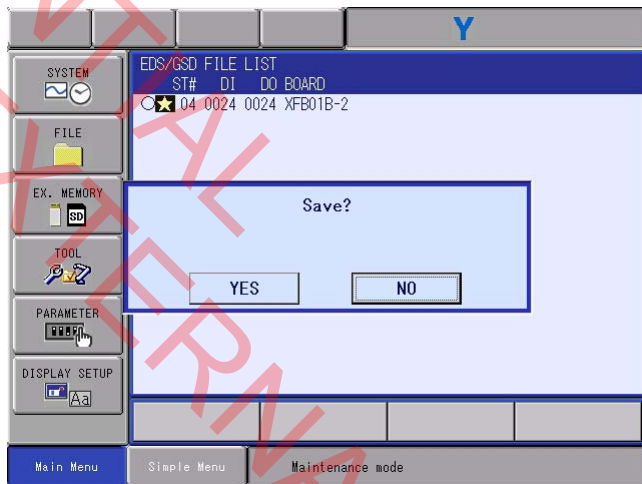
– The selected file is marked with "★".



○ indicates a version with no EDS file; ● indicates a version with EDS files.

3. Press [ENTER].

– The confirmation dialog box appears.



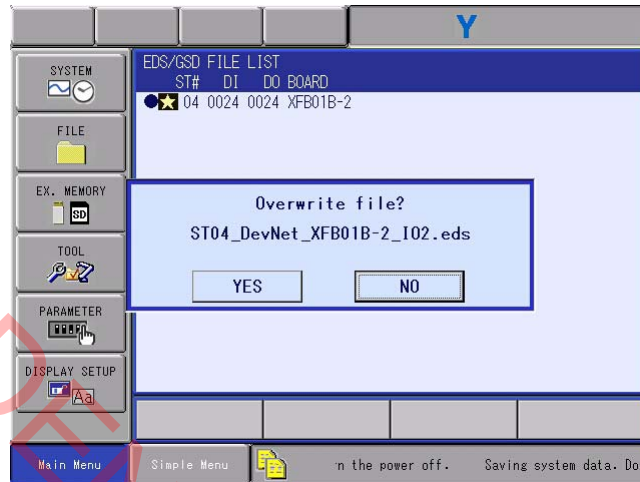
4 External Memory

4.3 Save

4. Select {YES}.

- Select {YES} to save the CMOS data into the SD card or USB memory.

When saving the file, if the CMOS.BIN file already exists in the SD card or USB memory, the following confirmation dialog box appears.



(● indicates a version where EDS files have already existed.)

5. Select {YES}.

- The CMOS.BIN file is overwritten in the SD card or USB memory.

4 External Memory
 4.3 Save

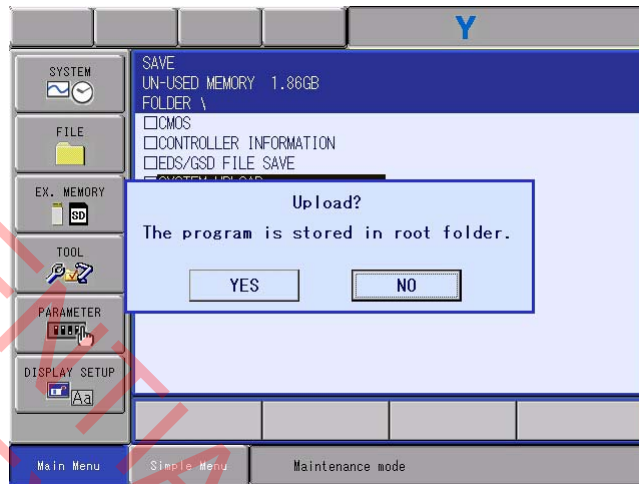
4.3.4 Program Upload

The program upload is the function to backup the system software of the YRC1000 collectively.

If the SD card mounted to the ACP01-E board should be damaged, when the backup files for the packages of the system software are made, the system can be restored easily and quickly.

For details of the program upload function, refer to YRC1000 MAINTENANCE MANUAL(RE-CHO-A114).

1. Select {SYSTEM UPLOAD} of the SAVE window.
 - The confirmation dialog box appears.

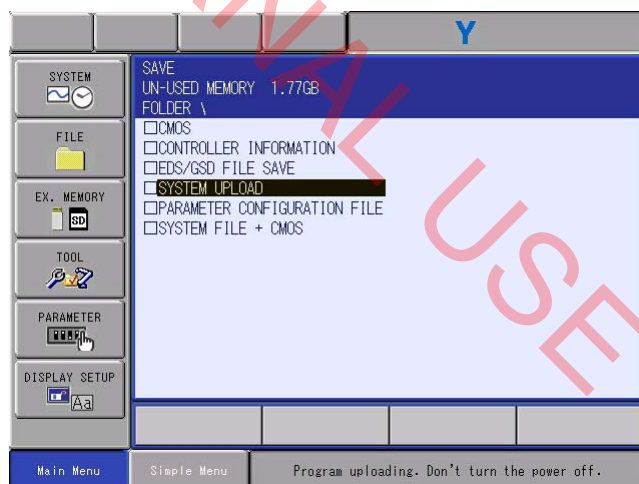


2. Select {YES}.

- Select "YES" to start transmitting the system software to the device to save.

While transmitting the data, the message 'Program uploading. Don't turn the power off.' appears on the programming pendant.

When the program upload processing is completed, the message displayed on the programming pendant will disappear.

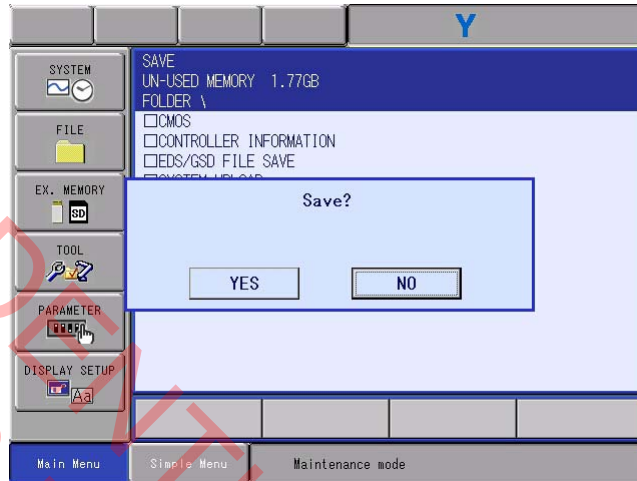


4 External Memory
 4.3 Save

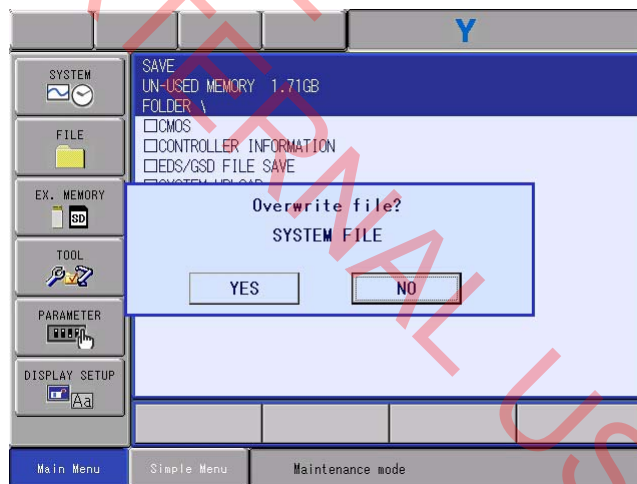
4.3.5 Saving the System File + CMOS

The system file + CMOS is the function to save the system software and the system data of the YRC1000 collectively. If the SD card mounted to the ACP01-E board should be damaged or the AIF01-□E board should be damaged, when the backup files for the system software and for the system data are made by using this function, the system can be restored easily and quickly.

1. Select {SYSTEM FILE + CMOS} of the SAVE window.
 - The confirmation dialog box appears.



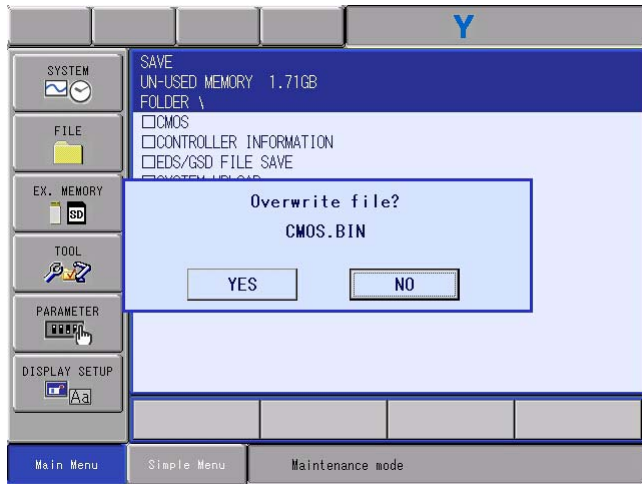
2. Select {YES}.
 - If there is already a system file on the device to save, the following confirmation dialog box appears.



4 External Memory
 4.3 Save

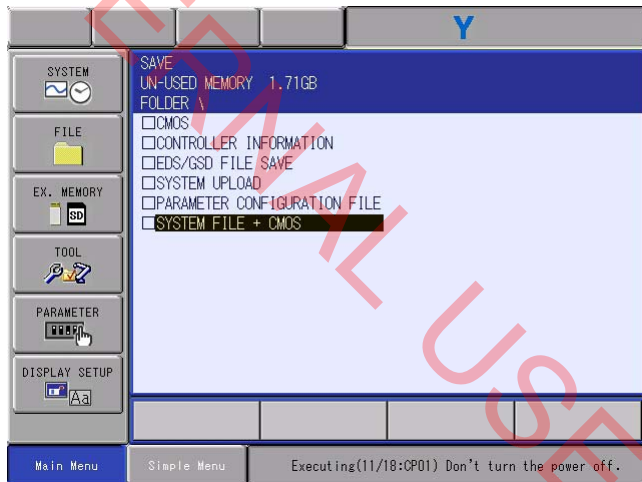
3. Select {YES} again, when overwriting the file.

- If there is a CMOS.BIN file on the device to save, the following confirmation dialog box appears.



4. Select {YES} or {NO}.

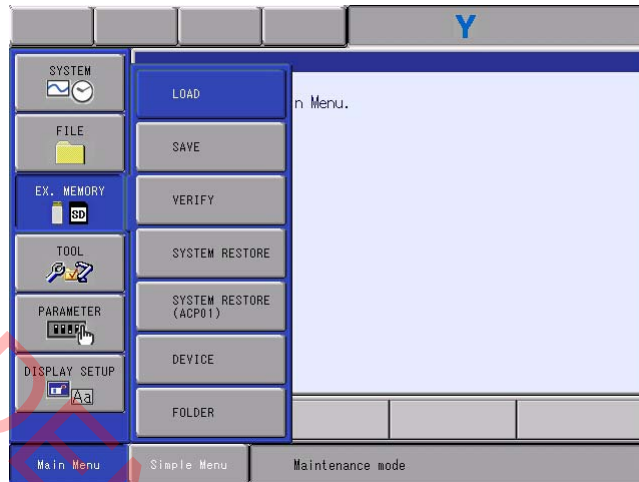
- Select "YES" to start transmitting the system file + CMOS file to the device to save.
 Select "NO" to start transmitting only the system file to the device to save. (The CMOS.BIN file is not transmitted.)
 While transmitting the data, the message 'Executing(xx / yy: the file name or the folder name while saving). Don't turn the power off.' appears on the programming pendant.
 When the system file + CMOS processing is completed, the message displayed on the programming pendant will disappear.
 xx: the file name or the folder name to save
 yy: the total number of the files and the folders to save



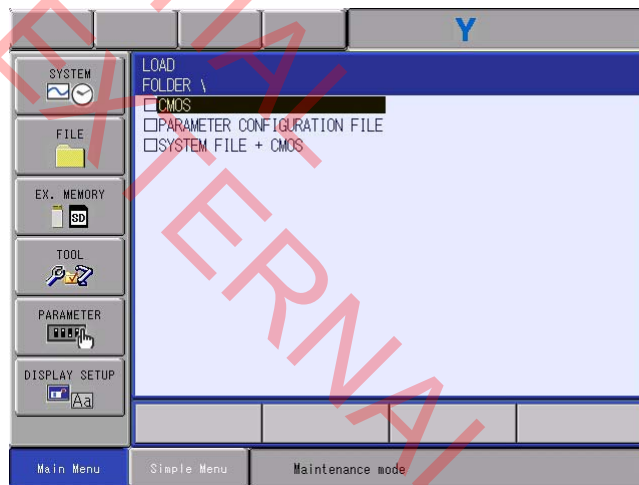
4 External Memory
 4.4 Load

4.4 Load

1. Change the security mode to the MANAGEMENT MODE or YASKAWA MODE.
2. Select {EX. MEMORY} under the main menu.
 - {LOAD} is displayed for the sub menu.



3. Select {LOAD}.
 - The LOAD window appears.



4 External Memory

4.4 Load

4.4.1 Loading CMOS

CMOS data (file name: CMOS.BIN) in SD card or USB memory can be loaded into the system.

1. Select {CMOS} under the LOAD window.
 - The confirmation dialog box appears.



2. Select {YES}.
 - The content of “CMOS.BIN” loaded is reflected to data on the SD card in the robot I/F Unit and ACP01.

NOTICE

If a loading of [CMOS] is executed, the current CMOS data will be overwritten with the content of the CMOS data “CMOS.BIN” on the SD card. Therefore, before the loading, be sure to save the CMOS data in the location to which the data are loaded.

4 External Memory
4.4 Load

4.4.2 Loading the Parameter Setting File

Using the parameter setting file can make the files in accordance with the certain format of the Windows PC and set to any value as the parameter.

(1) Outline of the Parameter Setting File

File name	Optional name of up to 32 characters in half-width (16 characters in full-width)
Extension	psc
Character code to use	ASCII code (from 0x20 to 0x7f) is recommended.
End-of-line code	"CR + LF" or "LF"
Comment	From ' (single quotation) to end-of line code

(2) Configuration of the Parameter Setting File

YYY,nnnn,xxx,z

YYY: Parameter type

nnnn: Parameter number

xxx: Setting value (decimal)

z : Comment up to end-of-line code

YYY: Parameter type is set as followings. (Specify the number to x.)

FD CIO S1D S2D S3D S4D SVD SVxG SVMxG RCD
RCxG ROxG AMCxG SVPxG MFxG SVCxB SVSxB RExG S1CxG S2C
S3C S4C AxP RS FMSxB SxE

(3) Example

When setting as follows:

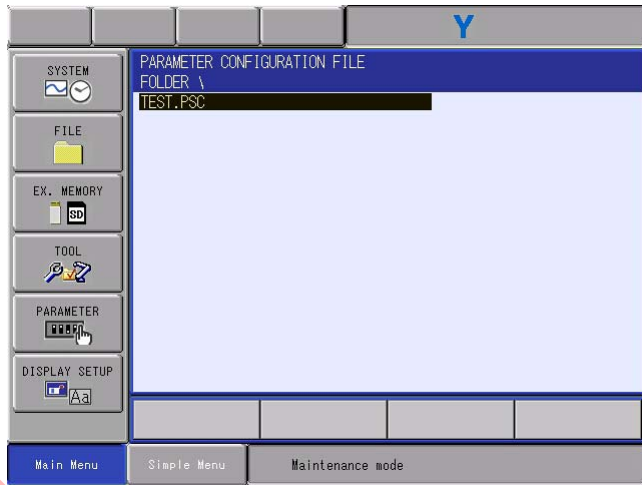
RC1G[100]=123, RC1G[999]=4, SVS1B[41]=1, FD[3]=1

RC1G, 100, 123, RC1G [100] = 123
RC1G, 999, 4, RC1G [999] = 4
SVS1B, 41, 1, SVS1B[41] = 1
FD, 3, 1, FD [3] = 1

4 External Memory
 4.4 Load

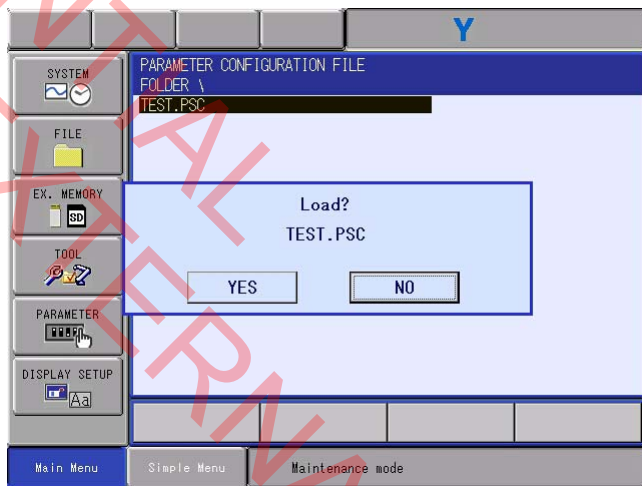
1. Select {PARAMETER CONFIGURATION FILE}.

- The PARAMETER CONFIGURATION FILE window appears. The displayed file is a *.psc file in the folder and up to 100 files will be displayed.




2. Select the parameter configuration file loaded to the YRC1000.

- The confirmation dialog box appears.



3. Select "YES".

- The content chosen of the parameter configuration file will be reflected to the system parameter of the YRC1000.



CAUTION

If the parameter configuration file is executed to load, the content of the system parameter will be overwritten.

Save the parameter file before executing to load.

4 External Memory
4.4 Load

4.4.2.1 Requirements

The configured information in the maintenance mode is saved in S3D parameter. For part of the parameter saved in the S3D parameter, when turning the power ON, the verification check is performed. The parameter value which performs the verification check cannot be changed by the parameter configuration file. If the value is attempted to change, an error occurs.

S3D parameter performing the verification check when turning the power ON

Parameter No.	Details
0	Specify the control group
1 – 32	Control group axis configuration information
33 – 64	Specify the control group ID
65 – 136	Physical axis support table
213	Detachment control group
227 – 234	Use type
249 – 256	Sensor type
308 – 339	Specify the OverTravel of the control group

4.4.2.2 Error Message List

The error message list when loading the parameter configuration file is shown as follows.

Error No.	Error message	Details
3390	File not found.	<ul style="list-style-type: none"> Chosen file cannot be read.
3651	Parameter number is the wrong format.	<ul style="list-style-type: none"> Any parameter is not set. The parameter number is not existed. The parameter number has five digits or more.
3652	Parameter value is the wrong format.	<ul style="list-style-type: none"> The parameter value is not existed.
3653	Parameter kind is out of range.	<ul style="list-style-type: none"> The specified control group is out of range. (Setting range: xx1G to xx32G) The specified servo board is out of range. (Setting range: xx1B to xx8B) The specified use number is out of range. (Setting range: A1P to A8P) The specified sensor number is out of range. (Setting range: S1E to S8E)
3654	Parameter number is out of range.	<ul style="list-style-type: none"> The specified parameter number is larger than the actual parameter number. The specified parameter number is the invalid axis number.
3655	Parameter value is out of range.	<ul style="list-style-type: none"> The specified parameter value is over the both upper and lower limits.
3656	Parameter kind is invalid.	<ul style="list-style-type: none"> The parameter kind which is not registered is specified. The parameter kind is not specified.
3657	Parameter number is invalid.	<ul style="list-style-type: none"> The parameter number is not decimal. The same parameter number is specified in multiple times.
3658	Parameter value is invalid.	<ul style="list-style-type: none"> The parameter value is not decimal.
3659	Failed to save the execution history.	<ul style="list-style-type: none"> Saving the execution history is failed.
3660	Parameter number is protected.	<ul style="list-style-type: none"> The unchangeable parameter is set. (For example S3D parameter)

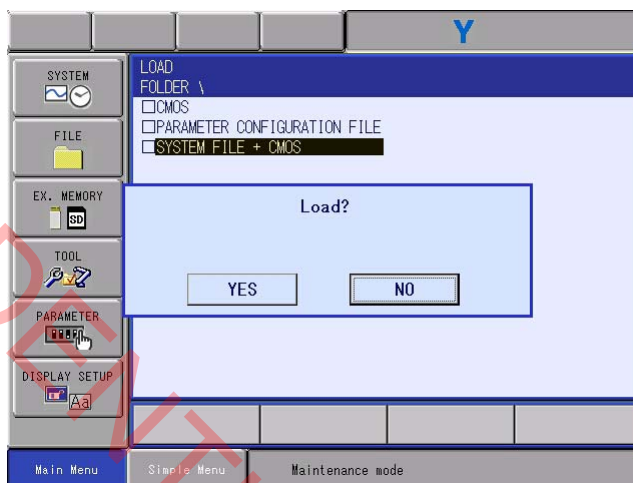
4 External Memory

4.4 Load

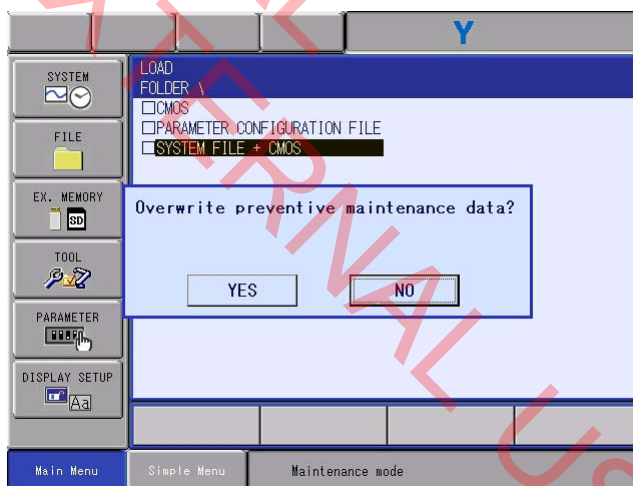
4.4.3 Loading the System File + CMOS

The system file + CMOS is the function to save the system software and the system data of the YRC1000 collectively. If the SD card which is mounted to the ACP01-E board should be damaged or the AIF01-□E board should be damaged, when the backup files for the system software and for the system data are made by using this function, the system can be restored easily and quickly.

1. Select {SYSTEM FILE + CMOS}.
 - The confirmation dialog box appears.



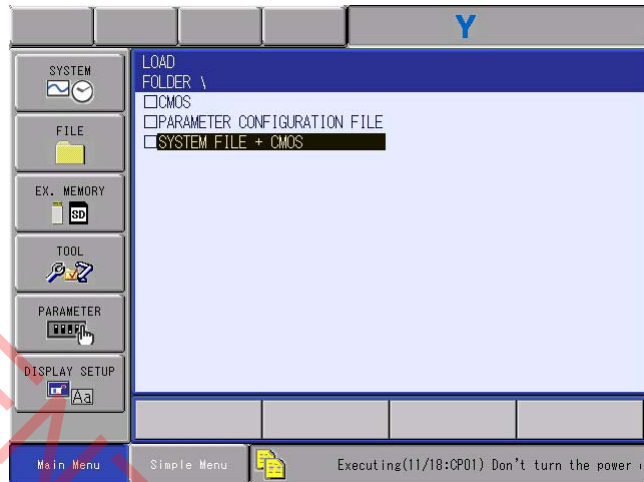
2. Select {YES}.
 - The confirmation dialog box appears.



- Select {YES}: The preventive maintenance information data is updated.
 Select {NO}: The preventive maintenance information data is not updated.

4 External Memory
 4.4 Load

3. Select {YES} or {NO}.
 Start transmitting the system file + CMOS file from the device to load. While transmitting the data, the message 'Executing(xx / yy: the file name or the folder name while saving). Don't turn the power off.' appears on the programming pendant.
 When the system file + CMOS processing is completed, the message displayed on the programming pendant will disappear.
 xx: the file name or the folder name to load
 yy: the total number of the files and the folders to load



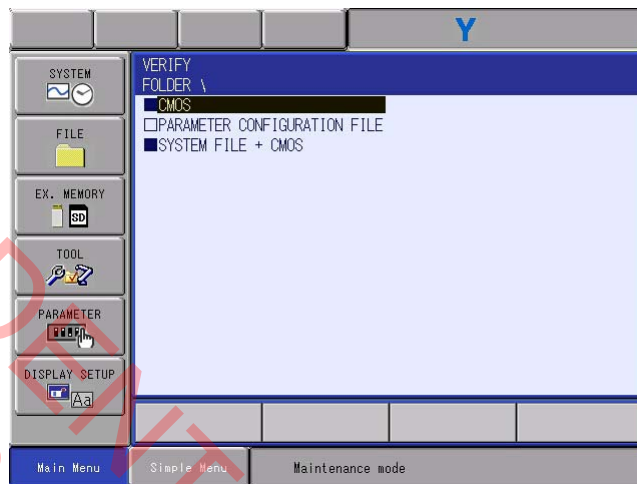
NOT FOR CONFIDENTIAL EXTERNAL USE

4 External Memory
4.5 Verification

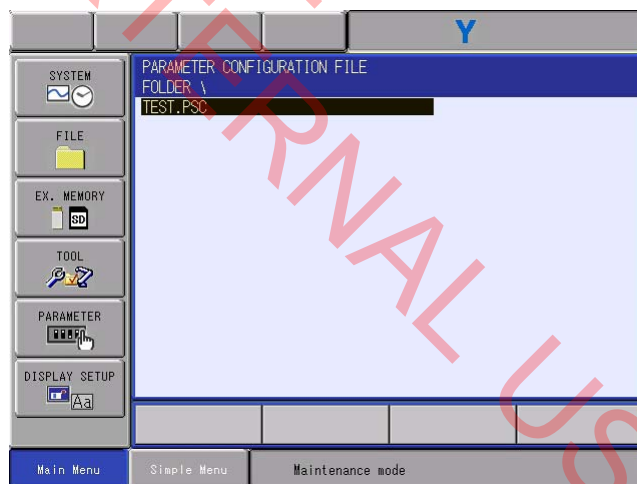
4.5 Verification

The parameter configuration file in the SD card or the USB memory and the parameter configuration file loaded in the YRC1000 can be verified.

1. Select {EX. MEMORY} under the Main Menu.
 - {VERIFY} appears in the sub menu.
2. Select {VERIFY}.
 - The VERIFY window appears.



3. Select {PARAMETER CONFIGURATION FILE}.
 - The PARAMETER CONFIGURATION FILE window appears.
The displayed file is a *.psc file in the folder and up to 100 files will be displayed.



4 External Memory
 4.5 Verification

4. Select the parameter configuration file to verify.
 - The confirmation dialog box appears.



5. Select "YES".

The parameter configuration file in the selected device and the parameter configuration file loaded to the YRC1000 will be verified. As a result of the verification, when there is no difference, beep sounds from the programming pendant, and then the VERIFY window appears. While there is any difference, "Error 3130 Verification error" occurs.

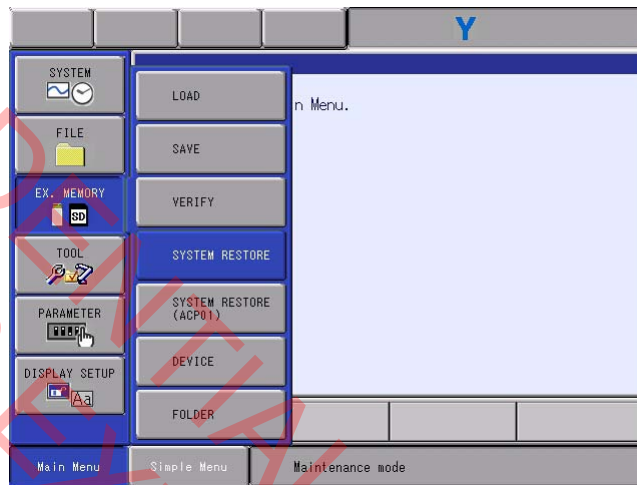
NOT FOR EXTERNAL USE

- 4 External Memory
- 4.6 System Restore

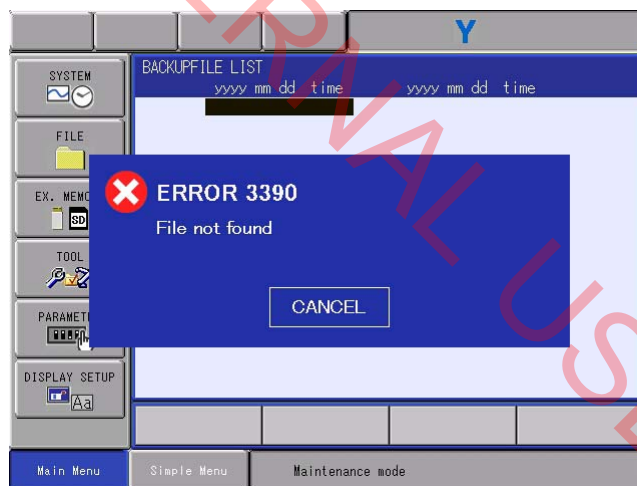
4.6 System Restore

The system can be recovered using the “CMOSBK.BIN” file that has been backed up with the automatic backup function on the SD card. With the automatic backup function, SD cards can be used, but not USB memories. For details, refer to “Chap.9.3 Automatic Backup Function” in “YRC1000 INSTRUCTIONS (RE-CTO-A221)”.

1. Change the security mode to be equal to or higher than the MANAGEMENT MODE.
2. Select {EX. MEMORY} under the main menu.
 - {SYSTEM RESTORE} is displayed for the sub menu.



3. Select {SYSTEM RESTORE}.
 - The BACKUPFILE LIST window appears.
 - If there is no backup file



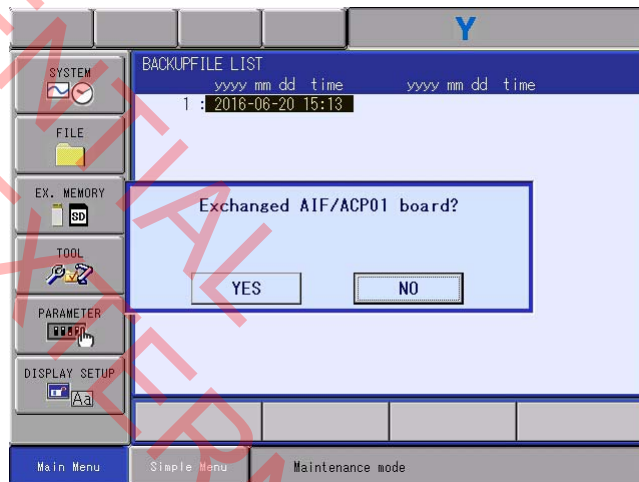
4 External Memory
 4.6 System Restore

●If there is backup file



4. Select the file for system restore.

– The dialog box appears for the AIF01/ACP01 board replacement confirmation.



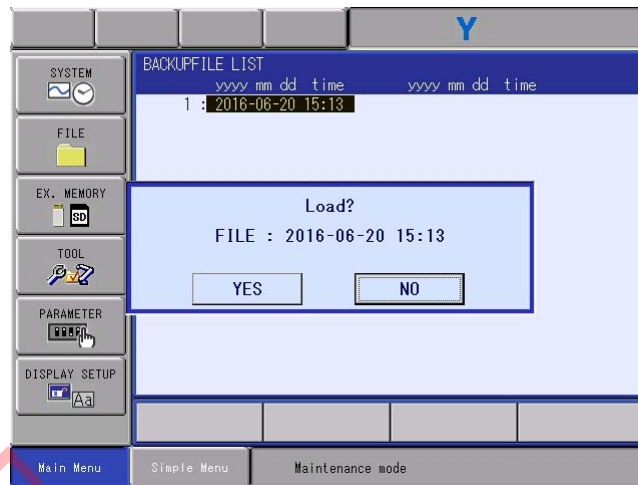
Select {YES} if the AIF01/ACP01 board has been replaced, or select {NO} if it has not been replaced.

Selecting {YES} initializes the system monitoring time.

Selecting {NO} continues the counting of the current system's monitoring time.

4 External Memory
4.6 System Restore

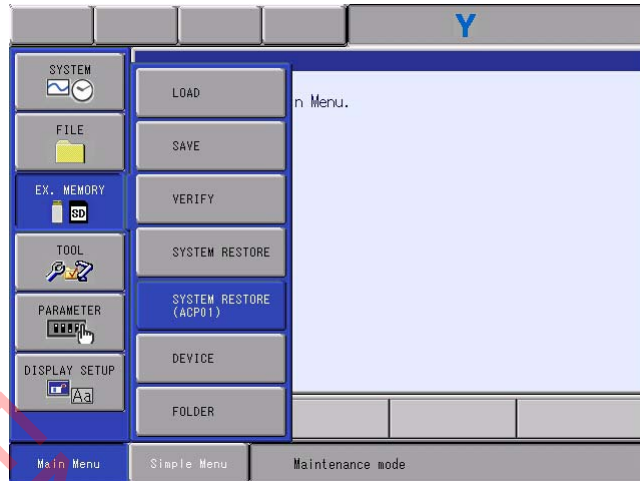
5. Select {YES} or {NO} for the message "Exchanged AIF01/ACP01 board?"
- The confirmation dialog box appears.



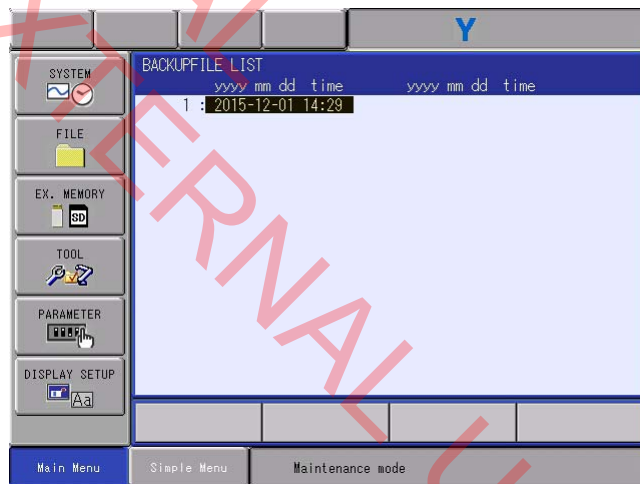
6. Select {YES}.
- The content of "CMOSBK.BIN" loaded is reflected to data on the SD card in the robot I/F Unit and ACP01.

4.7 System Restore (ACP01)

1. Change the security to be equal to or higher than the MANAGEMENT MODE.
2. Select {EX. MEMORY} under the main menu.
 - {SYSTEM RESTORE (ACP01)} is displayed for the sub menu.

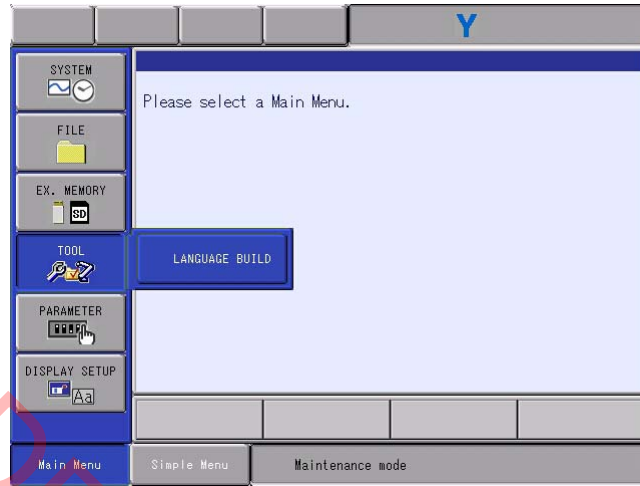


3. Select {SYSTEM RESTORE (ACP01)}.
 - If a automatic backup file exists in the SD card inserted into the ACP01 board, the BACKUPFILE LIST window appears. Hereafter, the operations are the same as in Chapter 4.6.



5 Tool

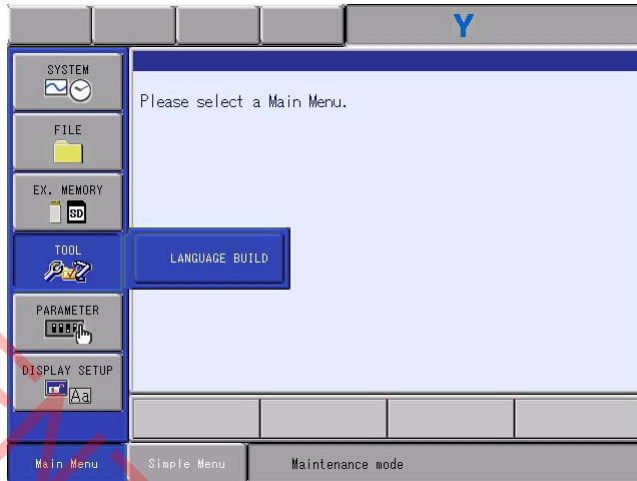
Select {TOOL} in the main menu, {LANGUAGE BUILD} become available.



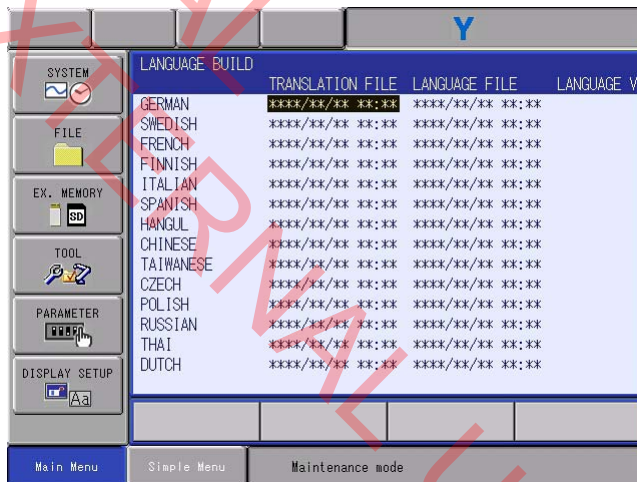
5.1 Language Build

Language can be built.

1. Change the security mode to the YASKAWA MODE.
2. Select {TOOL} under the main menu.
 - {LANGUAGE BUILD} is displayed for the sub menu.



3. Select {LANGUAGE BUILD}.
 - The LANGUAGE BUILD window appears.



4. Execute the language separation.

6 Parameter

For parameter setting and changing, refer to "Chap. 8.17 Changing the Parameters" in "YRC1000 INSTRUCTIONS (RE-CTO-A221)".

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7 Display Setup

For setting up the display, refer to "Chap.8.19 Display Setting Function" in "YRC1000 INSTRUCTIONS (RE-CTO-A221)".

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8 Fault Countermeasures

An operation condition of YRC1000 system can be determined by a status of an LED mounted on each board.

For details on the LED indicator on each board, refer to "Chap.10 LED Indicator on Circuit Board" in "YRC1000 MAINTENANCE MANUAL (RE-CHO-A114)".

When an error occurs, refer to "YRC1000 MAINTENANCE MANUAL (RE-CHO-A114)", and check the following:

- Whether or not each board in a CPU rack is correctly inserted into a correct slot position.
- Whether or not a cable of the IO module is correctly connected.
- Whether or not a cable between boards are correctly connected.

After checking the above, perform the following procedures.

1. Save CMOS.
 - Before replacing the robot I/F board or the ACP01 board, be sure to perform the CMOS save, and back up the CMOS BIN.
2. Turn OFF the power.
3. Insert the board where the error occurs again.
 - After removing a faulty board from the CPU rack and insert it again.
*There is some possibility of being in a contact failure at a connector part.
4. Start the system in maintenance mode.
 - Confirm if the board starts normally. If the board does not start normally, perform the following procedures.
5. Turn OFF the power.
6. Turn on again the power except for the robot I/F board and the ACP01 board.
<When not starting-up>
There is some possibility of being in a contact failure or a malfunction with the robot I/F board or the ACP01 board.
Remove and insert the board, or replace the board to new one.

<When starting-up>
There is some possibility of being in contact failure or malfunction with the board removed from the CPU rack.
Remove and insert the board, or replace the board to new one.
Turn OFF the power.
7. Turn OFF the power.
8. Remove and insert the board.
 - Remove and insert, or replace the board according to each case of <When not starting-up> and <When starting-up>.
9. Start the system in maintenance mode.

10. Check the ROM Version

- Confirm that ROM versions of all the mounted boards are displayed on a version screen of the {SYSTEM} in the maintenance mode. If there is any board of which the ROM version is not displayed, since there is some possibility of being in failure, replace the board. If there is any optional board of which the LED is flashing, replace it too.

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YRC1000

OPERATOR'S MANUAL

FOR MAINTENANCE MODE

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