

MELDAS Series

Model-E Replacing Manual (BQN-N02004A)

USA-E01071 -007A

mitsubishi
MITSUBISHI ELECTRIC AUTOMATION

USA

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SINGLE-AXIS DRIVE BUILT-IN CONTROLLER

MODEL E

REPLACING MANUAL

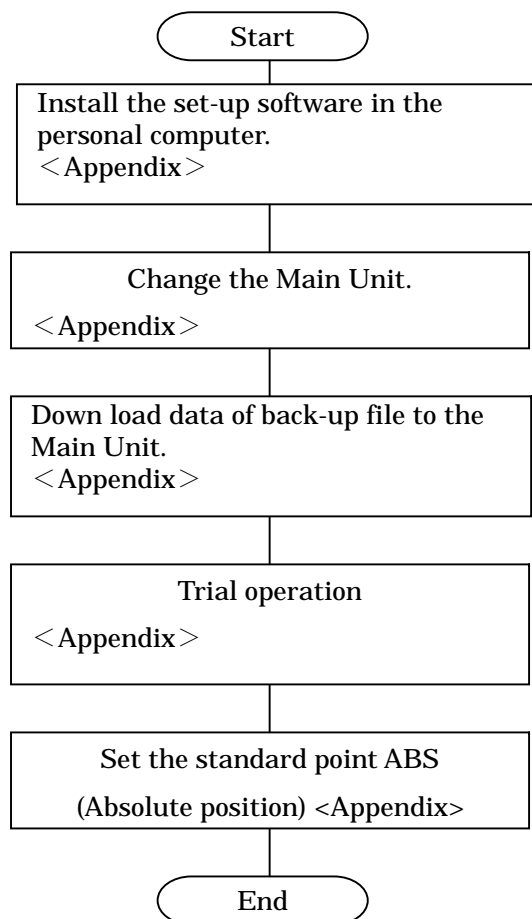
BQN-N02004(ENG.)A

This manual is for engineer who has already read both “Indication for safety” and “Model E maintenance book”.

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1. Outline

This manual is outline for changing operation of Model E (FCUA-MP10, FCUA-MP10-S1). Flowchart of changing is showed below.

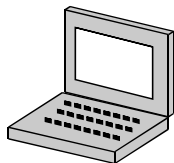


- Install the set-up software in the personal computer.
- If using the personal computer that has already installed the set-up software, this operation is unnecessary.
- Make the back-up file by transmitting all data in Model E unit to the personal computer. This data is used after changing the unit.
- Transmit all back-up that is saved in the personal computer to Model E unit. If there is no back-up data, input Parameter, Point table and PLC Program individually.
- Only ABS specifications is available.
- Except for ABS specifications, it is possible to operate normally as soon as zero position returns.

2. Preparation

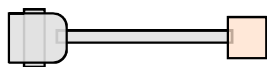
Before changing Model E, prepare follows.

- Personal Computer



PC-AT、DOS-V (Only MS-DOS Ver.3.0 or newer version)

- Cable for connecting the personal computer : FCUA-R0

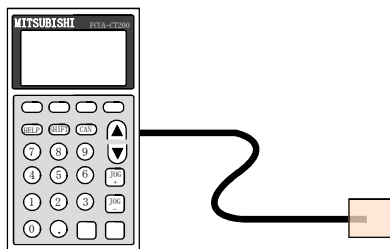


- Set-up software



Type of Model E	Name of software for set-up
FCUA-MP10	FWS-B04B014 (Only English version)
FCUA-MP10-S1	FWS-B04B015 (Only English)

- Teaching Unit : FCUA-CT200 and Exclusively cable : FCUA-CT200



3. Preparation of Set-up (Install to the personal computer)

Here is an explanation of method for installing set-up software to personal computer. If using the personal computer that has already installed set-up software, this operation is unnecessary.

Use set-up software by installing in HD (Hard Disk) of the personal computer.

Each personal computer has each software and the method of install.

In case of DOS-V Personal Computer (loaded Japanese version: MS-DOS)

Set-up software

FCUA-MP-10 : FWS-B04B014 (Only English)



FCUA-MP10-S1 : FWS-B04B015 (Only English)

1) Starting the personal computer by power ON.


In case of starting Windows95 automatically, select


“Start“→”Windows95 finishing“→”Re-starting in DOS mode” after starting Windows95.

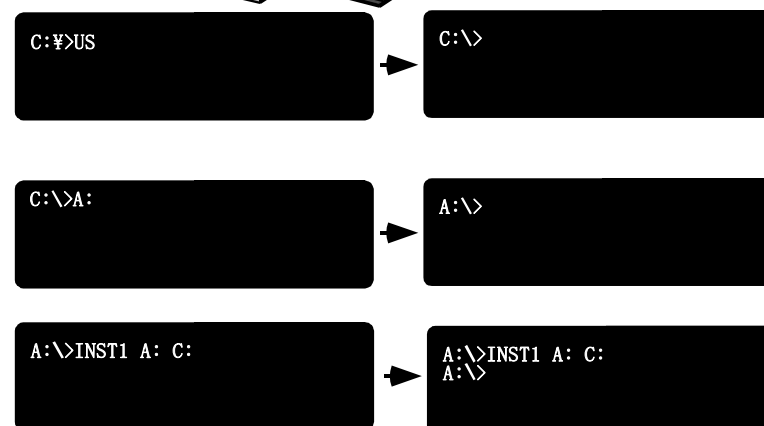
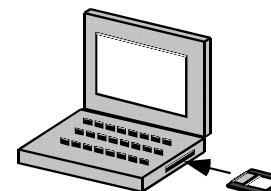
2) Insert the master floppy disk of set-up software.

3) Change mode of MS-DOS to English mode. Changing the mode to English one is to push  after typing “US”.(JP  returns Japanese mode. However, it doesn't work normally in Japanese mode.

4) Change the current drive to the floppy drive.

(Generally, the floppy drive has been set 「A:」 . After typing A: , push )

5) After typing “INST1” “A:” “C:”, push . It makes installation to Hard Disk (C:) start and finish automatically.



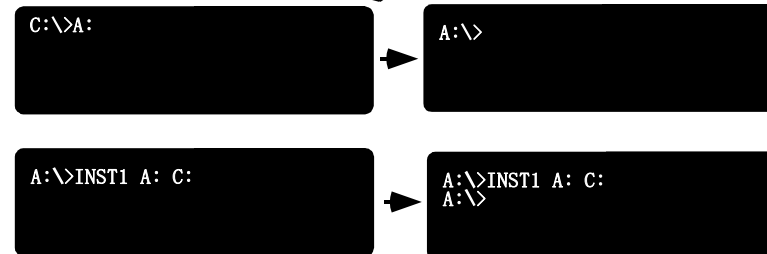
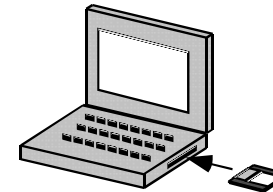
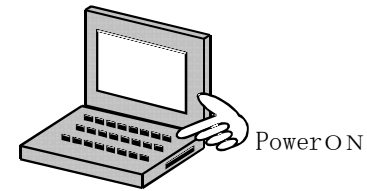
In case of PC/AT (IBM convertible & English version MS-DOS).

Set-up software

FCUA-MP-10 : FWS-B04B014 (Only English)

FCUA-MP10-S1 : FWS-B04B015 (Only English)

- 1) Starting the personal computer in MS-DOS mode.
- 2) Insert the master floppy disk of set-up software into Drive.
- 3) Change the current drive to the floppy drive.
 (Generally, the floppy drive has been set 「A:」 After typing A: push)
- 5) After typing "INST1" "A:" "C:", push It makes installation to Hard Disk (C:) start and finish automatically.



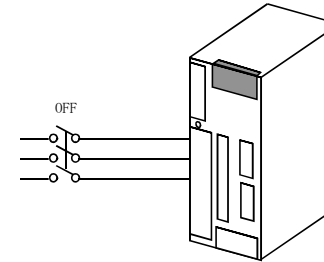
4. Making data for back-up

Set-up software is starting for making back-up file by connecting the personal computer to Model E.

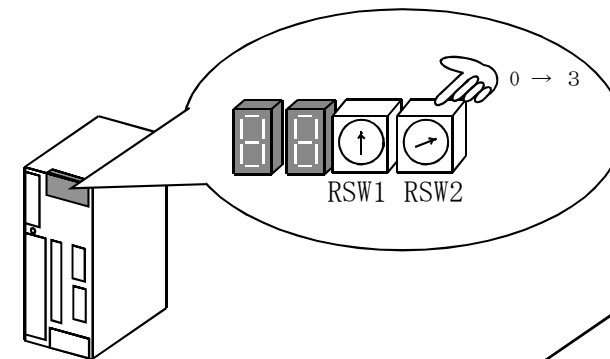
Start set-up software with the following procedure.

4.1 Setting of Model E

1) Turn the power OFF.



2) Set the rotary switch : RWS2 to 3.



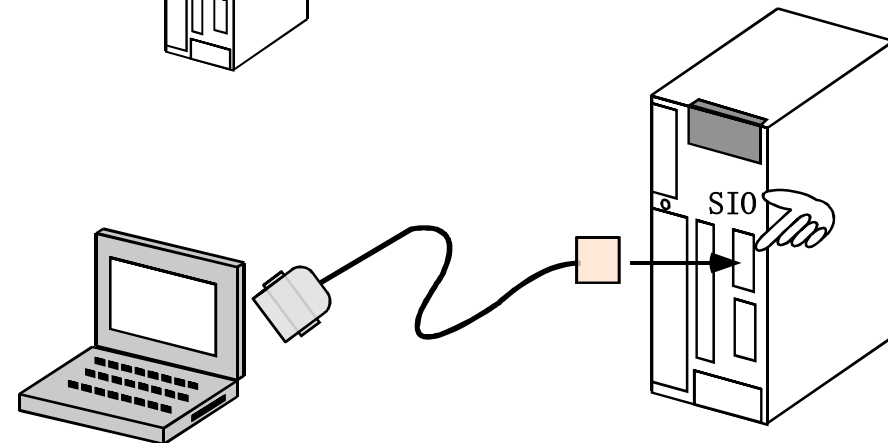
4.2 Connecting the personal computer

Connect between the connector: SIO1 and the serial port of the personal computer with the cable : FCUA-R020 or FCUA-R0xx.

(Caution : The cable will differ from the personal computer.

Refer to 2.)

Turn the Model E power ON.



4.3 Starting set-up software.

- 1) Turn the power of the personal computer ON with MS-DOS mode. (Set-up software can not operate unevenness with DOS prompt of Windows 95)

Change the current drive to H.D.

PC98 : DRIVE:: A

DOS-V、PC/AT :DRIVE : C

Switch MS-DOS mode to English mode.

The method that changing the mode to English is to push

[Enter] after typing “US”. (JP [Enter] returns the Japanese mode.)

However, it does not work normally with the Japanese mode.)

- 2) Switch the current directory.

For FCUA-MP10 (Standard) :

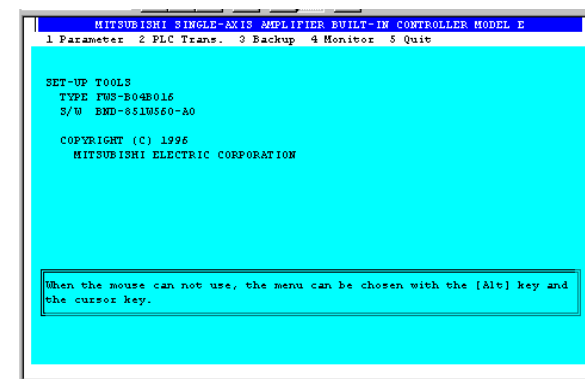
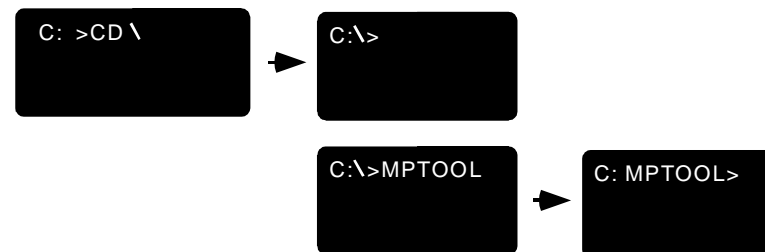
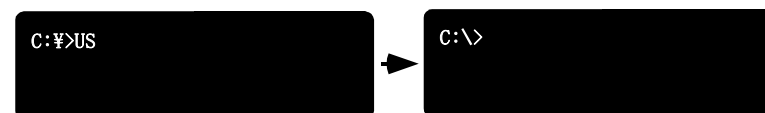
「MPTOOL」 \

For FCUA-MP10-S1 (Indexing machine) :

「ATCTOOL」 After typing “CD” (In case of DOS-V is “¥” Key), push [Enter]. And then after typing “CD” MPTOOL (In case of FCUA-MP10-S1 is “ATCTOOL”) , push [Enter]. As a result, the directory will switch 「MPTOOL」 (ATCTOOL) .

- 4) After typing “MPTOOL1”, push [Enter]. Starting set-up software and displaying the schematic drawing on right side.

Software for set-up is installed for FCUA-MP10 (Standard) and for FCUA-MP10-S1 (Indexing function) individually.



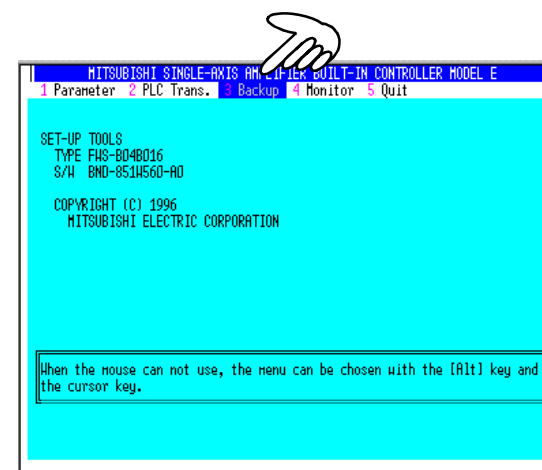
4.4 Backing up data

Select the back-up function of set-up software with the following procedure.

- 1) After pushing the emergency stop button of machine, turn the power of Model E ON.

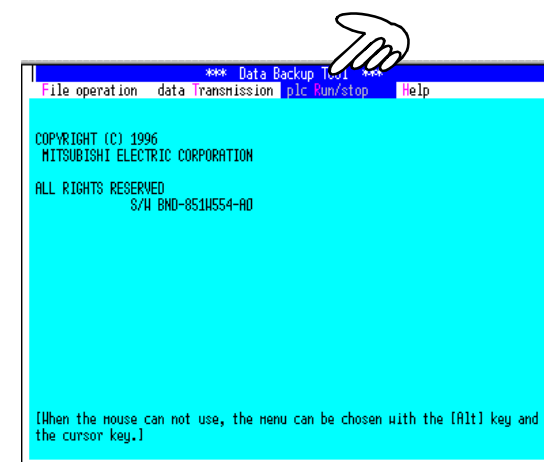
Select the back-up command on set-up software (Personal computer) screen. After pushing [Alt] at once, select the back-up function with the → key or [3 (number)] key. Follow the indication of the set-up software screen in detail.

[Alt]key, [→]key or [3]key, [Enter]



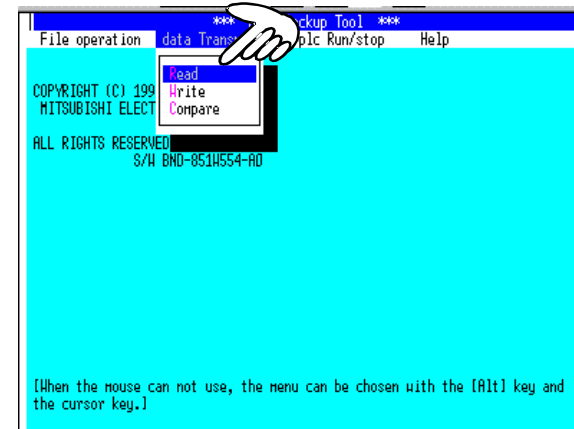
- 2) Starting the back-up function by pushing [Enter]. As a result, switched the screen. (Refer to the right drawing) Stop PLC in Model E by selecting the PLC Run/Stop command After pushing [Alt] at once, select the back-up function with the → key or the [R]. Appear the screen for stopping PLC by pushing [Enter]. Follow the indication of the screen after that.

[Alt]key, [→]key or [R]key, [Enter]

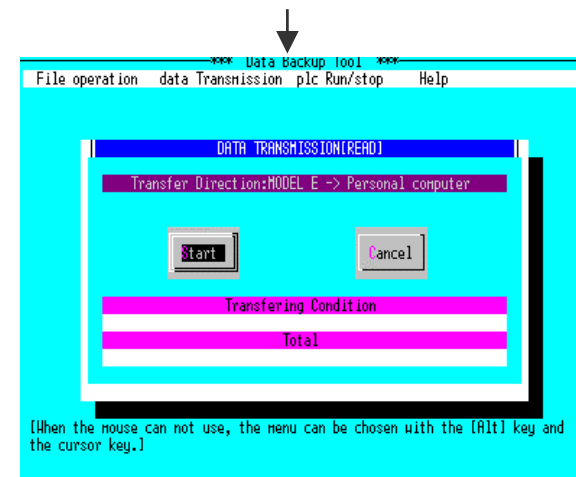


- 3) Select the [data Transmission] command. After pushing [Alt] at once, select it with the →key or the [T]key. Appear the screen for selecting the transmitting direction of data by pushing Select Read (Model E →Personal computer) with the [Enter][↓] key, after that pushing [Enter].

[Alt]key, [→]key or [T]key, [Enter]
 [↓]key [Enter]key, or [R]key



- 4) After appearing the screen that says starts to transmit the data, push [Enter]. As a result, starting to transmit the data. If the data transmitting is stopped during this operation, select “Cancel” with the Tab key or [C] and push [Enter].



[Tab] or [C], [Enter]

- 5) Save the data, which is transmitted from Model E to the personal computer, in the floppy disk or the hard disk.
(Caution : Delete the transmitted data without this above operation.)

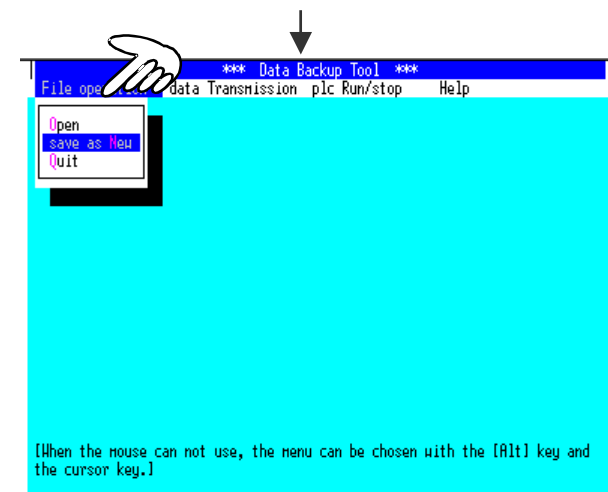
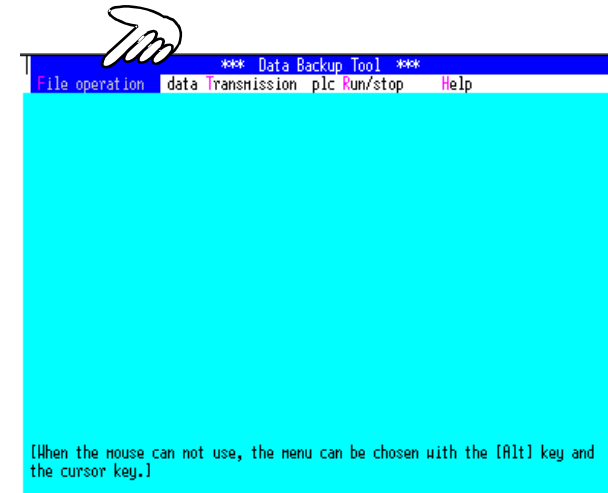
Initialize the screen by pushing [Esc].

After pushing [Alt], select the “File operation” function with the [→] key or the [F] key.

- 6) Display the menu of “File operation” by pushing [Enter]
Select “save as New” with the [↓] key, and then push [Enter].

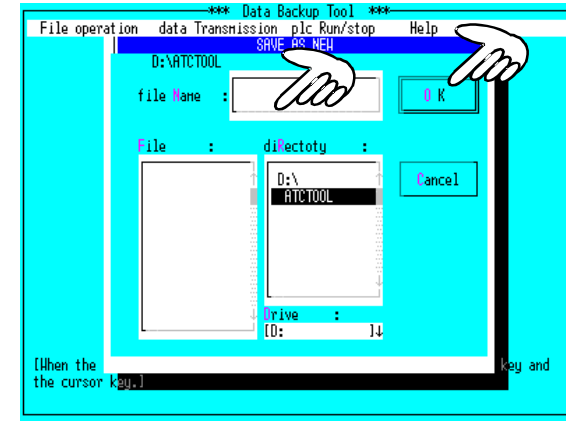
[Alt]key, [→]key or [F]key, [Enter]

[↓]key [Enter], or [N]key

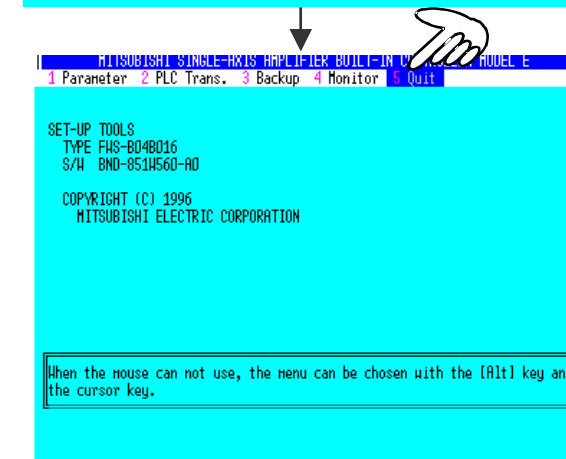
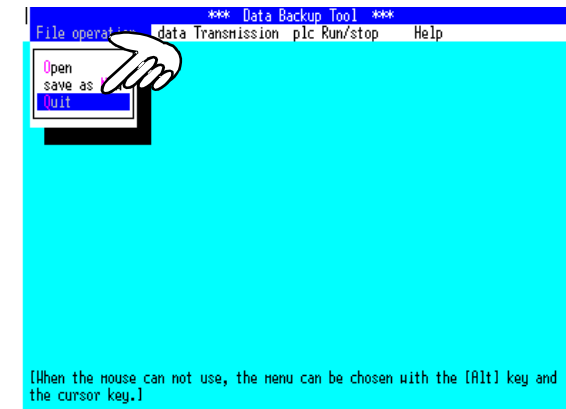


7) After appearing the display (right drawing), input the file Name (Alphabet 8 letters).

After input the name, select “OK” with [Tab] and push [Enter]. Starting to make the back-up file.



8) After finishing making the back-up file, select “Quit” and initialize the screen. Finish set-up software by selecting “Quit” with [Tab] or [5] Finally turn the power of both the personal computer and Model E OFF.



5. Changing Model E

5.1 Removing Model E

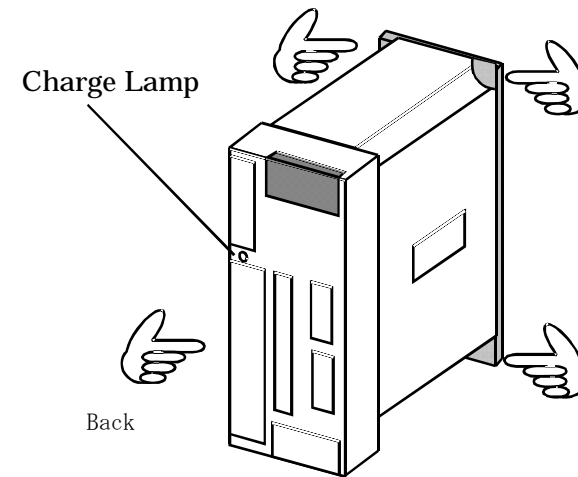
- 1) Confirm that turn the power of the machine, Model E and the personal computer OFF.
- 2) Confirm that the charge lamp of Model E doesn't light up.
In case of lighting the charge lamp, begin the next operation after putting the light off.
- 3) Remove all cable or connector from Model E.
- 4) Remove Model E from the cabinet.
(Model E is fixed with 4 screws at the 4 points.)

Write down the operation report, "Type name of Model E", "Problem", "Changed date" and so on.

5.2 Installing Model E

- 1) Install the removing procedure in reverse order.
- 2) Don't turn the emergency stop button OFF even though the connection of cable or connector has done completely.

Caution : Don't operate anything during lighting the charge lamp.



Caution : Accident occurs in case of turning the emergency stop button OFF with setting parameter incorrectly.

6. Starting Model E

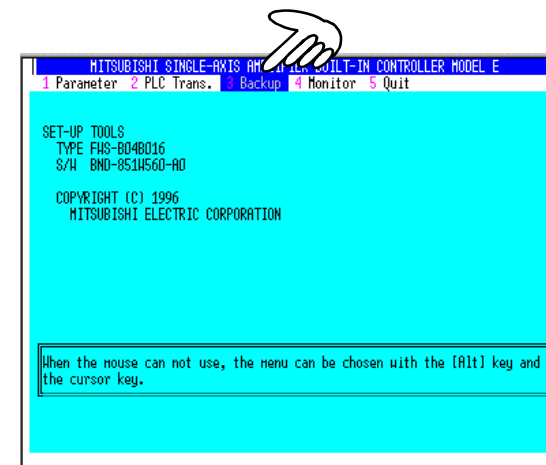
6.1 Re-installing back-up data

Start software of set-up by connecting the personal computer to Model E for re—installing back-up data.

Refer to Appendix 4 about method of connecting the personal computer and starting set-up software.

- 1) Turn the rotary switch:RSW2 of Model E to "3".
- 2) After pushing the emergency stop button, turn the power of Model E On.
- 3) Select the Back Up command on the screen for set-up software (the personal computer). After pushing [Alt] once, select it with [→] or [3 (Number)]

[Alt]key, [→]key [Enter], or [3]key,



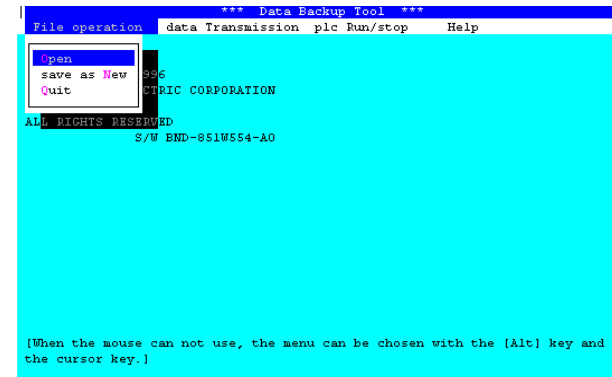
[Alt]key [→]key [Enter], or [F]key,

- 4) Switch the screen to Data Back Up by pushing [Enter] (Refer to the right drawing) . And then, select the File operation function. After pushing [Alt] once, select it with the [→] or [F] key.



3) After selection of menu, select Open with the [→] or [O] key

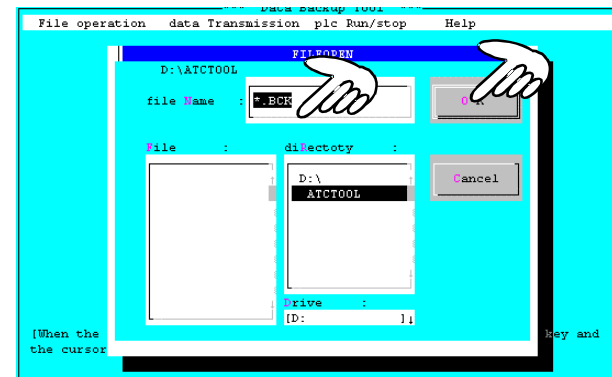
Appear the screen for reading Back Up Data from Hard Disk or Floppy Disk.



4) Input the name of Back Up File

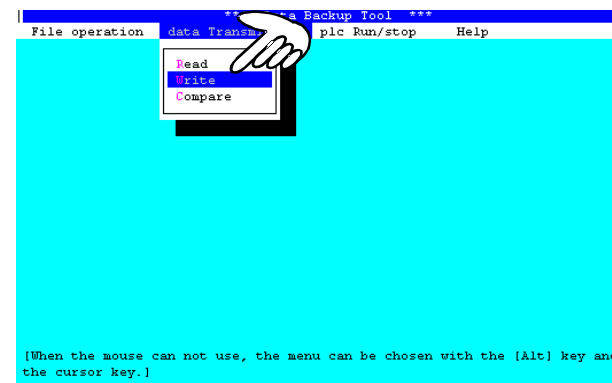
And then, select OK with the [Tab] key and push [Enter].

Open Back Up File, and the preparation of data Transmission is done.

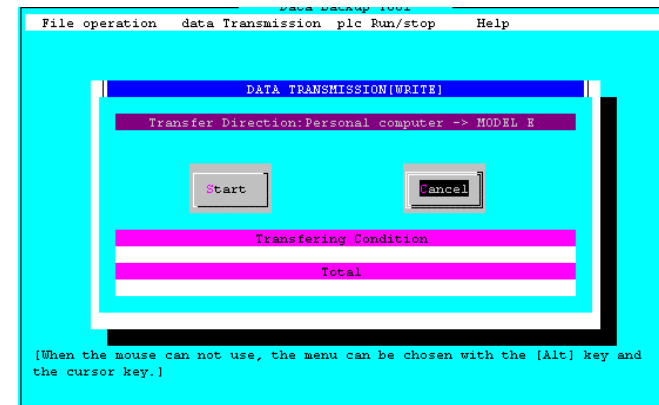


5) Select the data Transmission function with the [→] or [T] key.

6) After appeared the screen that is select menu function, select Write(Transmission: the personal computer → Model E) with the [→] or [W] key.



- 7) After appeared the screen that is Data transmission, select Start with the [Tab] key and push [Enter]. Start that the data transmit, and then it finishes automatically.
- 8) After finishing Data transmit, make set-up software finish. Turn the power of the personal computer and Model E Off. Remove the cable for connecting the personal computer from Model E



6.2 Setting of ABS

Here is an explanation of method for setting of absolute position reference point with reference point alignment.

If needing the other setting method of ABS or DOG, refer to “Handling/Maintenance manual”

- 1) Connect the reaching box FUCA-CT200 to Model E with the cable

The Model E side connector is SIO.

- 2) Set the rotary switch RSW2 to 0.
- 3) Turn the power of Model E On and confirm the setting of parameter in FCUA-CT200

If displaying after the #300 parameter, need the other operation (Refer to the right drawing).

- 4) Turn the emergency stop OFF.
- 5) Turn the test mode of Model E effective.

Refer to the right drawing

- * During the test mode, the command from the teaching box is priority.

<How to display the newer parameter than #300>

①Display the I/F diagnosis by pushing the 「ALM/DGN」 key of the teaching box. (After turning the power On, push it twice)

②Input Mode M to the device number 1001

Push the following key on the I / F diagnosis

· (1)(0)(0)(1) (SHIFT) (▲) (SHIFT) (▲) (M) (Enter)

I/F	▼AUT
X000	00101010
	00000000
1001 :	: M

<How to be effective Test mode>

①Display “Test operation available/unavailable

FCUA-MP10 (Standard) : After [SHIFT], [TEACH]

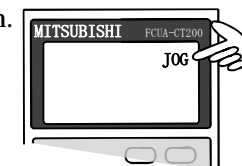
FCUA-MP10-S1 (Indexing function) : [TEACH]

②Switch available/unavailable

Switching method···Push the 0(zero) key.

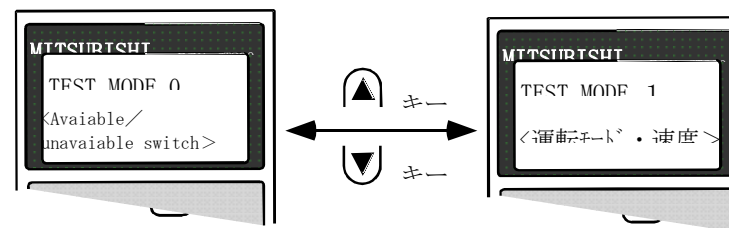
③In case of the available test operation, display the screen.

The sign that is at upper right of the teaching box turns on and off.



6) Select the Drive mode and the feed speed.

Display the screen that the Drive mode and the feed speed is selected by pushing [▼] during the test mode on the Test operation Effective/Ineffective. Whenever pushing the [▲] or [▼] key, the screen switch.



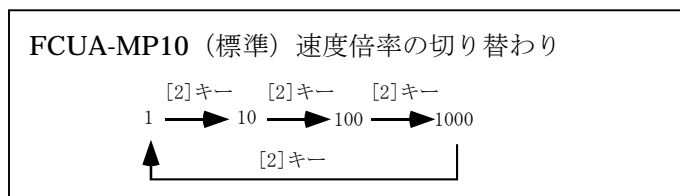
Whenever pushing the [0 (Zero)] key on the Test mode 1, the operation mode switches.

*** Select JOG mode.**

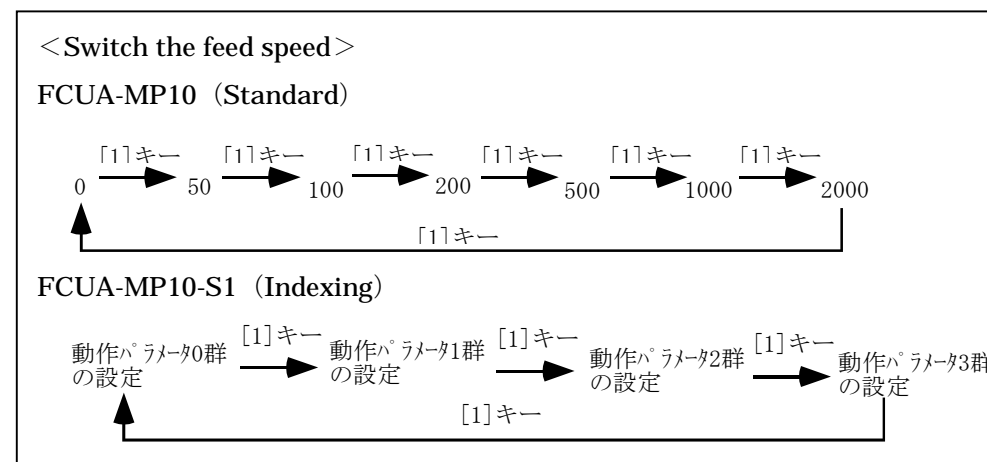
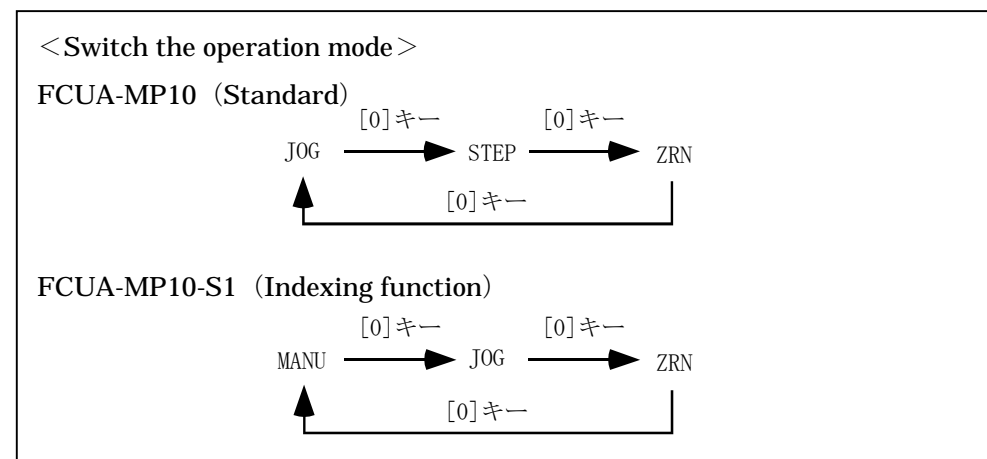
Whenever pushing the [1] key on the Test mode 1, the screen switches.

Only FCUA-MP10 (Standard) can be set the magnification of the feed speed. Whenever pushing the [2] key, the feed speed changes.

Actual feed speed is 「Set speed × Magnification」



*** Select the slow speed.**

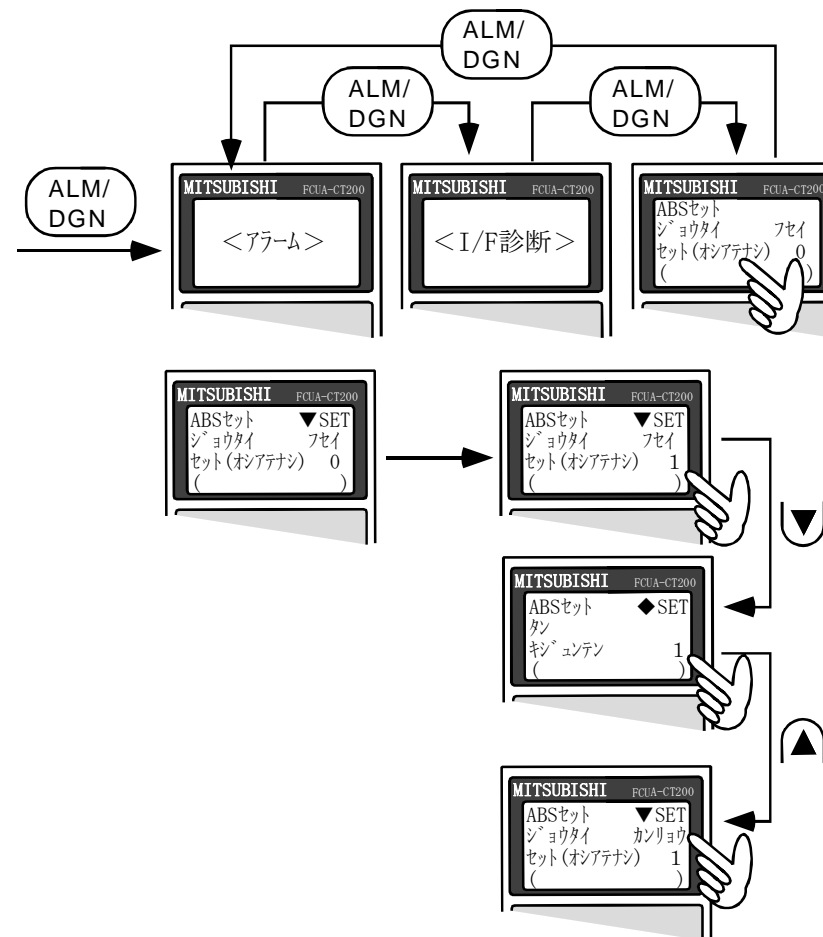


7) Set the parameter for ABS.

Parameter name	Parameter NO.& Set value	
	FCUA-MP10	FCUA-MP10-S1
SV.sv001 bit-7	#300 bit-7 = 1	#300 bit-7 = 1
ABS Dog	#344 = 0	#370 = 0
ABS stopr	#345 = 1	#371 = 1
ABS dir	#346 = (It depends on machine)	#372 = (It depends on machine)
ABC on	#355 = 1	#384 = 1

8) Select the [ABS set screen] with the {ALM/DGN} key of the teaching box : FCUA-CT (After turning the power On, push the 3 times.)

Confirm that the display says 「NOSTOP」.



9) Input [1] on the [SET] of [1st of ABS set screen]

9) Set the standard point of the machine by moving the axis with the [JOG+] [JOG+] key of the teaching box FCUA-CT
 * The standard point differs from machine.

10) Display [2nd of ABS set screen] with the [▼] key.
 Input [1] into [Reference point]

11) Move the axis to the direction of ABS dir with the [JOG+] or [JOG+] key of the teaching box: FCUA-CT200.
 The axis stops automatically.

12) Confirm that the screen 「2nd of ABS set screen」 says 「Complete」.

13) Turn the power Off. All operation is done.