

# C

## BOOT SYSTEM

---

Appendix C, "BOOT SYSTEM", consists of the following sections:

C.1 OVERVIEW .....	557
C.2 SCREEN CONFIGURATION AND OPERATING PROCEDURE.....	562
C.3 ERROR MESSAGES AND REQUIRED ACTIONS .....	578

## C.1 OVERVIEW

---

The boot system load the CNC system software (Flash ROM → DRAM), then starts it so that software can be executed.

The boot system provides the following maintenance functions for the CNC:

- (1) Registering a file in Flash ROM  
A file is read from the FAT16-formatted memory card and written to the flash memory.  
(A FAT32-formatted memory card cannot be recognized.)
- (2) Checking a file (series and edition) in Flash ROM
- (3) Checking a file (series and edition) in Memory card
- (4) Deleting a file from Flash ROM
- (5) Deleting a file from Memory card
- (6) Saving a file in Flash ROM to a Memory card
- (7) Batch saving and restoration of files of parameters and programs backed up by battery (SRAM area), to and from a Memory card
- (8) Formatting of a Memory card

This manual describes the activation of the boot system, as well as the screen displays and operation for the functions listed above.



### CAUTION

- 1 This control unit supports the use of a Memory card as an input/output device. The Flash ATA card is available:  
See the order list for details of the supported Memory card types.
- 2 On a Memory card, only those files that are in the root directory can be accessed for display, reading, and writing. Those in subdirectories cannot be used.
- 3 The time required to read or write each data item varies depending on the Memory card type, the status of use, and other factors.
- 4 For flash ATA cards, only those recommended by FANUC are available.
- 5 When formatting a flash ATA card, use the quick formatting method, which clears the file allocation table and the directory information on the root directory. An unformatted flash ATA card needs to be formatted in FAT16 with a PC or the like. (A FAT32-formatted ATA card cannot be recognized.)

## C.1.2 Starting the Boot System

In ordinary system activation, the boot system automatically transfers files from Flash ROM to DRAM in the background.

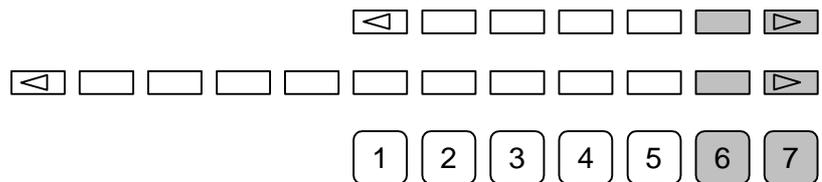
The user is not aware of this operation. However, the boot system must be operated manually, from menu screen, when maintenance is to be carried out or when the Flash ROM does not contain a required file.

### Operating procedure

- (1) In system maintenance, for example, to replace a file in ROM operation

#### - When soft keys or MDI keys are present

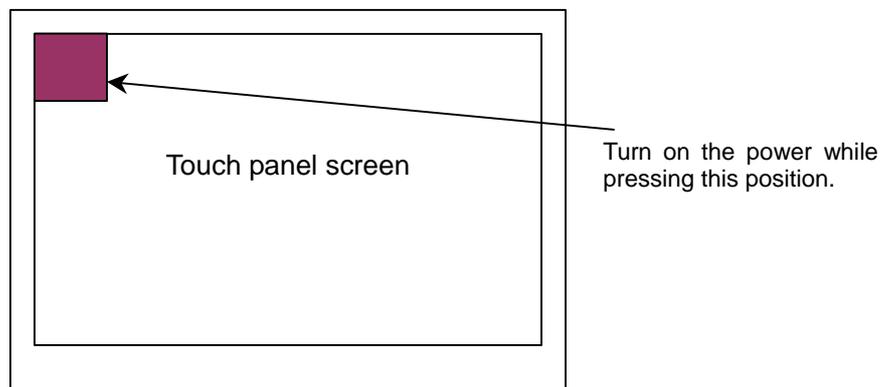
Turn on the power while pressing the rightmost soft key and the soft key to the right at the same time. Numerical keys 6 and 7 on the MDI keyboard can also be used.



After an FROM ID and other items are displayed on the CNC screen, releasing the key brings you to the SYSTEM MONITOR screen.

#### - When soft keys or MDI keys are not present (touch panel)

In the CNC power-off state, turn on the power while pressing  at the upper-left corner of the touch panel screen.



The maintenance operation screen below appears after a while.

## C.2 SCREEN CONFIGURATION AND OPERATING PROCEDURE

When the boot system is first started, the MAIN MENU screen is displayed. This screen is described below :

### MAIN MENU screen

(1)	SYSTEM MONITOR MAIN MENU      60W3 - 01	(1)	Screen title. The series and edition of the BOOT SYSTEM are displayed at the right end.
(2)	1.END	(2)	Function for terminating the boot system and starting the CNC.
(3)	2.USER DATA LOADING	(3)	Function for writing data to Flash ROM.
(4)	3.SYSTEM DATA LOADING	(4)	Function for writing data to Flash ROM.
(5)	4.SYSTEM DATA CHECK	(5)	Function for checking the edition of a file in ROM.
(6)	5.SYSTEM DATA DELETE	(6)	Function for deleting a file from Flash ROM or Memory card.
(7)	6.SYSTEM DATA SAVE	(7)	Function for making a backup copy of the data stored on the Memory card.
(8)	7.SRAM DATA BACKUP	(8)	Function for backing up and restoring the SRAM area
(9)	8.MEMORY CARD FORMAT	(9)	Function for formatting a Memory card.
(10)	*** MESSAGE *** SELECT MENU AND HIT SELECT KEY. [SELECT][ YES ][ NO ][ UP ][ DOWN ]	(10)	Simple operating instructions and error messages are displayed.

### Operating procedure

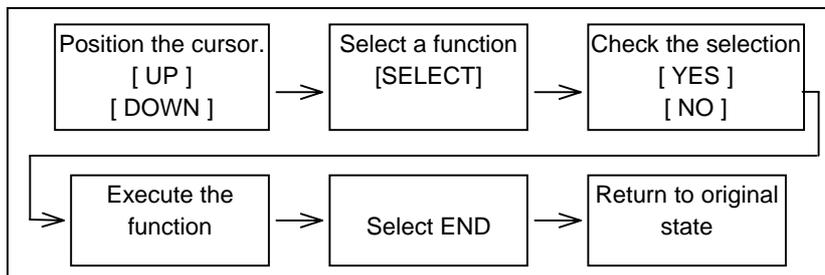
#### - For other than the touch panel

Press the [UP] or [DOWN] soft key to select the desired function. After positioning the cursor to the desired function, press the [SELECT] soft key. Before executing a function, for a confirmation, it maybe need to press the [YES] or [NO] soft key.

#### - For the touch panel

This procedure directly presses [SELECT], [YES], [NO], [UP], and [DOWN] on the screen. For the touch panel, [PREV] equivalent to soft key  and [NEXT] equivalent to soft key  are displayed, so press these keys for operation.

**Basic operation**



## C.2.5 SRAM DATA UTILITY Screen

### Description

This screen is used to collectively save and restore parameters, tool compensation memories, and other data, retained after the CNC power in SRAM is turned off, to and from a Memory card.

### Screen configuration

<p>(1) SRAM DATA UTILITY</p> <p>(2) 1. SRAM BACKUP ( CNC -&gt; MEMORY CARD ) 2. SRAM RESTORE ( MEMORY CARD -&gt; CNC )</p> <p>(3) 3. END</p> <p>(4) SRAM + ATA PROG FILE : (4MB)</p> <p>(5) SRAM_BAK.001</p> <p>*** MESSAGE *** SET MEMORY CARD NO.001 ARE YOU SURE ? HIT YES OR NO. [SELECT][ YES ][ NO ][ UP ][ DOWN ]</p>	<p>(1) Screen title.</p> <p>(2) Menu</p> <p>(3) Returning to the MAIN MENU.</p> <p>(4) The SRAM file size is displayed. (Displayed after a processing option is selected.)</p> <p>(5) The name of the file currently being saved or loaded is displayed. (Displayed after a processing option is selected.)</p>
<p>(6) *** MESSAGE *** SELECT MENU AND HIT SELECT KEY. [SELECT][ YES ][ NO ][ UP ][ DOWN ]</p>	<p>(6) Message</p>

### Operating procedure (Backing up data)

- (1) Select "1.SRAM BACKUP" The following confirmation message is displayed. To start backup, press the [YES] soft key.
- (2) If the data cannot be saved entirely onto a single Memory card, a message such as that shown below is displayed. With the power still on, insert the second Memory card and press the [YES] key. Press the [NO] key to cancel saving.

```

*** MESSAGE ***
SET MEMORY CARD NO.002
ARE YOU SURE ? HIT YES OR NO.
[SELECT][ YES ][ NO ][ UP ][ DOWN ]
    
```

- (3) In this way, you can divide SRAM data onto a maximum of 999 Memory card for backup.

- (4) Upon the termination of backup, the system displays the following message. Press the [SELECT] soft key.

```
*** MESSAGE ***  
SRAM BACKUP COMPLETE. HIT SELECT KEY.  
  
[SELECT][ YES ][ NO ][ UP ][ DOWN ]
```

### Operating procedure (Restoring the data)

- (1) Select "2.RESTORE SRAM" The following confirmation message is displayed. To start restoration, press the [YES] soft key.
- (2) A message such as that shown below is displayed. Insert the first Memory card containing SRAMBACK.001 and press the [YES] key. Press the [NO] key to cancel restoration.

```
*** MESSAGE ***  
SET MEMORY CARD INCLUDING SRAM_BAK.001  
ARE YOU SURE ? HIT YES OR NO.  
[SELECT][ YES ][ NO ][ UP ][ DOWN ]
```

- (3) If another Memory card is required, a message such as that shown below is displayed. With the power still on, insert the second Memory card and press the [YES] key. Press the [NO] key to cancel restoration.

```
*** MESSAGE ***  
SET MEMORY CARD INCLUDING SRAM_BAK.002  
ARE YOU SURE ? HIT YES OR NO.  
[SELECT][ YES ][ NO ][ UP ][ DOWN ]
```

- (4) Replace the second card with another, if required. Repeat this step until backing up all data.
- (5) Upon the termination of restoration, the system displays the following message. Press the [SELECT] soft key.

```
*** MESSAGE ***  
SRAM RESTORE COMPLETE. HIT SELECT KEY.  
  
[SELECT][ YES ][ NO ][ UP ][ DOWN ]
```

 **CAUTION**

- 1 Backup files will be created with a file name of SRAMBAK.xxx, where xxx is replaced with a number between 001 and 999 sequentially. On the first Memory card, a backup file is created with a name of SRAMBAK.001. If all data is not contained on the single card, a backup file containing the excess data is created with a name of SRAMBAK.002 on the second Memory card. In this way, you can divide data onto a maximum of 999 Memory card for saving.
- 2 Check that the Memory card used for backup does not contain a file with a name of SRAMBAK.xxx before performing a BACKUP operation. You can check a list of file names on a Memory card by using the SYSTEM DATA LOADING function.
- 3 The Memory card used for backup needs to be formatted in FAT16.