



FANUC Robotics SYSTEM R-J3 Controller HandlingTool Software Installation Manual

MARF3HD5109801E REV. A

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C.4 CONTROLLER BACKUP AND RESTORE

Controller backup and restore allows an R-J3 controller to back up and restore controller memory. This capability is divided into two parts:

- Controller backup
- Controller restore

Controller backup is performed at controlled start. During controller backup, the entire contents of controller memory are copied to files on the designated device. Refer to Section [C.4.1](#).

Controller restore is performed from the Boot Monitor (BMON). During controller restore, all of FROM and CMOS is cleared and then files previously created using the controller backup procedure are loaded from the default device. Refer to Section [C.4.2](#).

NOTE FTP can be used to transfer controller memory files over an Ethernet network. The Trivial File Transfer Protocol (TFTP) can be used to load controller memory files onto the controller via an Ethernet network. Refer to the **SYSTEM R-J3 Ethernet Controller Backup Restore-FTP Setup and Operations Manual** for more information.



CAUTION

If you restore a controller and a file already exists on the controller, the file is automatically overwritten.

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C.4.1

Backing up a Controller

The controller backup feature allows you to back up the entire contents of controller memory. The backup procedure sets up the files so that controller memory can be fully restored if necessary. When you restore the controller backup to the controller, you will have a fully loaded controller.

Use [Procedure C-5](#) to perform a controller backup using a memory card device. To perform a controller backup using Ethernet, refer to the *SYSTEM R-J3 Ethernet Controller Backup-FTP Setup and Operations Manual*.

Backup Files

When a controller backup is performed, the CMOS is copied into compressed binary image files called cmosxx.ld1.

The files from the FROM device will be created and stored in subdirectories to distinguish the FROM device type.

In addition to creating the backup files, the backup utility creates a .cf file for each memory card. The first one is called *restore.cf* . The rest of the files will have unique names based on the date and time stamp from when the backup was performed. When a controller restore is performed, these files are used to direct the system to load all of the files created during the backup.

CAUTION

The restore.cf file is overwritten each time a controller backup is performed. If you are backing up more than one controller, create a separate subdirectory to contain backup files and restore.cf for each controller. Otherwise, restore.cf will be overwritten and you will not be able to restore controller memory.

You might want to store the controller backup files in the location from which you will load them. It is a good idea to create a separate subdirectory for each robot. If you store backups

- On a UNIX workstation , the load directory usually is the /usr directory on the local hard drive of the workstation. This is due to restrictions on file access established by some TFTP server implementations.
- On a personal computer , the load directory can be any directory you specify.

NOTE You cannot use a PS-100 floppy device for controller backup because the floppy device does not support subdirectories. However, a floppy emulator that supports subdirectories can be used.

Use [Procedure C-5](#) to perform a controller backup to a memory card device.

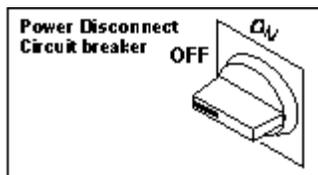
Procedure C-5 Backing up a Controller to a Memory Card Device

NOTE If an error occurs during controller backup, correct the error and try to continue. If the system does not allow you to continue, repeat the entire controller backup procedure.

NOTE You cannot perform a backup to a floppy disk.

Step

- 1 Perform a controlled start.
 - a If the controller is turned on , turn it off.
- 2 Turn ON the disconnect.



- a On the teach pendant, press and hold the PREV and NEXT keys and press the ON button. You will see the Configuration Menu similar to the following.

```

----- Configuration Menu -----
1 Hot start
2 Cold start
3 Controlled start
4 Maintenance

Select >
    
```

b Type 3 and press ENTER.

CAUTION

The CTRL start takes thirty seconds to finish. Do not turn off the controller until the CTRL start has completed. Otherwise, you will lose the software loaded on your controller and will have to reload it. The CTRL start is finished when the Configuration menu disappears and the CTRL start menu is displayed.

c When it is finished, you will see a title line on the screen similar to the following.

```

CONTROL START MENU
    
```

- 3 Press MENUS.
- 4 Select File.
- 5 Press F5, [UTIL].

```

1 Floppy disk
2 Serial Printer
3 FROM Disk (FR:)
4 ME Disk (ME:)
5 Mem Card (MC:)
6 Mem Device (MD:)
7 -- NEXT --
1 Console (CONS:)
    
```

- 6 Select Set Device.
- 7 Select Mem Card (MC:).
- 8 Press FCTN.
- 9 Select Restore/Backup.

CAUTION

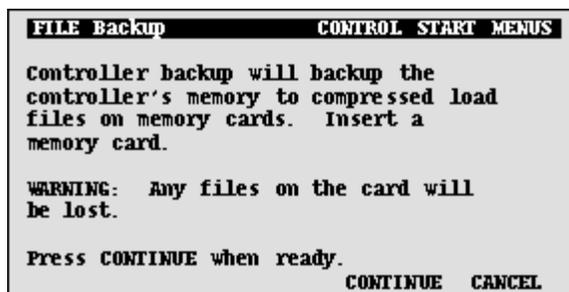
Backing up files to a memory card will erase all the information on the card or disk before the backup is performed. You will lose all the information currently stored on the memory card.

- 10 Press F4, BACKUP.
- 11 Select Controller. You will see a screen similar to the following.

```

1 System files
2 IF programs
3 Application
4 Applic.-IF
5 Error Log
6 All of above
7 Controller
    
```

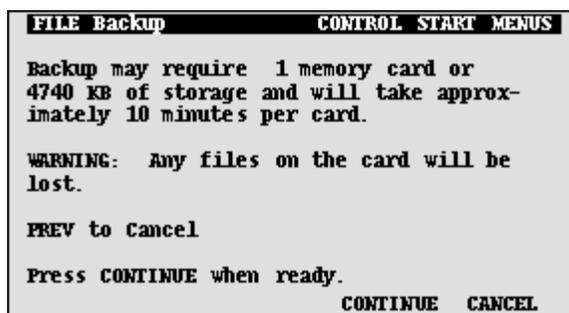
If you have selected the Memory Card Device you will see this screen



12 If you do not want to continue the backup, press F5, CANCEL.

To continue , press F4, CONTINUE. You will see a screen similar to the following.

If you have selected the Memory Card Device you will see this screen



13 To continue, press F4, CONTINUE.

If you do not want to continue the backup, press F5, CANCEL.

The system will start to write backup files.

14 When the system has finished writing the current files, and a second memory card is required, you will see one of the following messages:

If you have selected the Memory Card Device you will see this screen



15 Insert the next memory card and press F4, CONTINUE.

16 When the system has finished writing the current files, you will see the following message:

Controller backup completed successfully

- 17 To exit the screen , press PREV.
- 18 Press FCTN.
- 19 Select Start (COLD).

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C.4.2 Restoring a Controller

The controller restore function allows you to restore controller memory on a controller from a backed up controller. Use [Procedure C-6](#) to restore a controller.

CAUTION
If you restore a controller and a file already exists on the controller, the file is automatically overwritten.

Procedure C-6 Restoring a Controller after a Backup

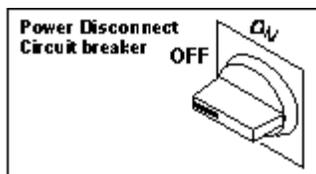
Condition

- You have the controller backup files on memory cards. ([Procedure C-5](#) must have been performed before you can restore a controller.)
- The teach pendant ON/OFF switch is OFF and the DEADMAN switch is released.
- The REMOTE/LOCAL keyswitch on the operator panel is set to LOCAL.

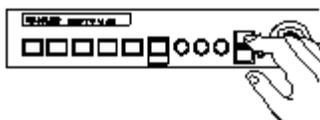
CAUTION
You must use Procedure C-5 to back up a controller before you can restore a controller using this procedure. Otherwise, the controller restore procedure will not function properly.

Step

- 1 If the controller is turned ON, turn it OFF.
- 2 Turn ON the disconnect.



3 Press and hold the F1 and F5 keys on the teach pendant, then press the ON button. You will see a screen similar to the following.



```

*** BOOT MONITOR for R-J3 CONTROLLER ***
Base System Version V5.1101 (N. A.)
Initializing file devices ... done.
***** BMON MENU *****
1. Configuration Menu
2. All software installation
3. INIT start
4. Controller backup/restore
5. Hardware diagnosis

Select : _

```

4 Release all of the keys.

5 Insert the memory card that contains the system backup in the memory card interface.

6 Select Controller backup/restore and press ENTER. You will see a screen similar to the following.

```

*** BOOT MONITOR for R-J3 CONTROLLER ***
**** BACKUP/RESTORE MENU ****
0. Return To Main Menu
1. Emergency Backup
2. Backup Controller As Images
3. Restore Controller Images
4. Restore Full Ctrl Backup (From MC)
5. Bootstrap To Cfg Menu

Select:

```

7 Select Restore Full Ctrl Backup and press ENTER. You will see a screen similar to the following.

```

*** BOOT MONITOR for R-J3 CONTROLLER ***
**** RESTORE CONTROLLER ****
CAUTION: This operation ERASES all
of FROM and SRAM

Insert PC card with system backup.

Are you ready? [Y=1/N=ELSE]:

```

CAUTION

The following operation erases all of SRAM and FROM. Be sure you are prepared to erase all of SRAM and FROM before you execute Step 8.

8 If you want to continue, press 1 and then press ENTER.

To cancel, press 0 and then press ENTER.

Restoring will take several minutes (approximately 2-3 minutes per memory card). You will see messages displayed on the screen stating that SRAM and FROM are being cleared and that files are being loaded. You will see a screen similar to the following.

```
Cleaning SRAM (2 MB) .. Done
Search and Load System Files from MC:
-----
TOTAL of 100 files loaded
Starting system software,
      Please wait..
```

NOTE When all the files have been loaded, the controller will start up in cold start mode. You will see a screen similar to the following.

```
UTILITIES Hints                JOINT 10 %
-----
      HandlingTOOL (N. A.)
            VS.11-x

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[ TYPE ]                HELP
```

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