MOTOMAN XRC USERS'S MANUAL FDDWIN32 version 4.00

Upon receipt of the product and prior to initial operation, read these instructions thoroughly, and retain for future reference.



MANUAL NO. MRS55000

Reference list

Basic Operator's Manual Windows User's Manual

This manual only show how to use FDDWIN32 together with robot controller type: MOTOMAN XRC. To connect to MRC or ERC controllers, see separate document

Revision

991125 First release of this manual

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FDD for Windows (32-bit)

Valid for FDD for Windows, version 4.00 (Motoman part No. 441108-99).

EDD for Windows g:\gemen	sam\temp	_ 🗆 🗙
<u>File ⊻iew Language H</u> elp		
File Information	Communication Status	
25points.jbi		
abso.dat		
alcms1e.hex		
all.prm		
hamta1.jbi		
hamta2.jbi		
ioname.dat		
lag-kant.jbi		
prov.jbi		
prov1.jbi		
sok.jbi		
sok-1dim.jbi		
sok-1yta.jbi		
sok-2dim.jbi		
SOK-YN.JDI		
Robot Files		

1. General

Fig.1 Main screen

FDD is a 32-bit PC-software.

The purpose with FDD is....

- ✓ One way communication from up to four MOTOMAN robots to one PC.
- ✔ Connection to ERC, MRC and XRC robot controllers.
- ✔ Replaces disk drives type FC1 / FC2.
- ✓ Expanded storage area for robot jobs in the PC.
- ✓ Editing the robot job is not possible by this program.

✓ This is a multi language version of FDD which gives you the facility to switch between 11 languages and even create new language files.

For more basic information about installation and handling of the software, icons, menu bars, etc. refer to the operator's manual for Windows 95/98 or Windows NT.

- ✓ This manual shall always be available to operator.
- ✓ This User's Manual comprises information about
- ✓ Installation / Setup / Handling / operation for XRC robot controller
- ✓ Text written in BOLD letters means command, icon or button.
- ✓ Text written in *ITALIC* means text shown on display.

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Copyright

1.1 Copyright

The <u>diskettes</u> for FDD-program may not be copied or imparted to a third party nor be used for an unauthorized purpose. Copies may be done only for own backup. This <u>manual</u> may not be copied or imparted to a third party nor be used for an unauthorized purpose.

1.2 FDD-kit

■ FDD-kit comprises

- ✔ Diskettes (for FDD and NT drivers) or CD-ROM
- ✔ One hardware key
- ✔ One manual
- ✔ One registration card

■ FDD-Kit does not comprise

- ✓ Cables Motoman part No 347359-xx (xx =length code)
- ✔ Adaptors

Further you may have need for

- ✓ Programming manual for your robot controller.
- ✔ Operator's manual for Windows 95/98 or Windows NT.

1.3 Hardware and software demands

- ✓ One PC type 486 or better, 16 Mb RAM, 2 Mb disk space.
- ✓ 3,5"-diskette station, 1,44 Mb.
- ✓ Colour monitor (not necessary).
- ✔ Windows 95/98 or Windows NT.

✓ If three or four robots are to be connected, the computer must be equipped with an extra board including two extra Com-ports.

- ✓ MOTOMAN XRC robot controller.
- ✓ RS232 adaptor, 9-pole to 25-pole.
- ✔ Protective hood, if the PC is installed in the workshop.

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Software installation

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Installation

2. Software installation

Note

This chapter shows a general installation phase of any software. In this example the software FDDWIN is installed. Select the right software by choosing the appropriate software name.

2.1 Installation

There are three ways to start installation of this software, all will give the same result. The most common way is described below.

- a) Put the first diskette named #1 in the disk-drive.
- b) Click on the Start button on the menu-bar.
- c) Choose Run from the menu.
- d) Browse to drive A:\
- e) Choose the file named SETUP.EXE
- f) Click OK.

Run	? ×
5	Type the name of a program, folder, or document, and Windows will open it for you.
<u>O</u> pen:	A:\Setup.exe
	OK Cancel <u>B</u> rowse

Fig.1 Choose installation file

- g) Choose OK and the installation guide will start.
- h) You can quit the installation att any time by clicking the **Cancel**-button and then confirm by **Yes**-button.

Install	×	
?	Do you want to abort this installation?	
	Yes No	

Fig.2 You can cancel installation at any time

i) Mark the language you want to use during installation. *Note!* This will not influence the language you use in FDDWIN32 later.



j) Click on the OK-button.



Fig.3 Language selection during installation

k) Pass this information screen by clicking the Next-button.

FDDWIN32 Installati	on 🗙
	Welcome!
	This installation program will install the FDDWIN32. Press the Next button to start the installation. You can press the Cancel button now if you do not want to install the FDDWIN32 at this time.
	< Back Next 2 Qancel

Fig.4 Information screen

I) Read through the license agreement and accept by clicking on the Next-button.

FDDWIN32 Installatio	n
	Motoman Robotics AB End User License Agreement.
	PLEASE RETURN ACCOMPANYING REGISTRATION CARD TO RECEIVE REGISTRATION BENEFITS!
**	NOTICE TO USER: THIS IS A CONTRACT BETWEEN YOU AND MOTOMAN ROBOTICS AE, TORSÅS, SWEDEN BYINDICATING YOUR ACCEPTANCE BELOW, YOU ACCEPT ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT This End User License Agreement accompanies an MOTOMAN ROBOTICS AB software product ("Software") and related explanatory written materials ("Documentation"). The term "Software" shall also include any upgrades. modified versions, updates, additions, and copies of the Software licensed to you by Motoman Robotics AB. This Copy of the Software is located to you are not point of the software licensed to you as the end user or to your employer or another third party authorized to permit your use of the Software. "You" as used in the remainder of this
	< Back Next Cancel

Fig.5 License agreement. Accept by clicking Next.

m) Set directory for FDDWIN32. It's advisable to install the software in the directory which is set as default by the installation guide.



n) Accept by clicking Next-button.



o) Accept installation process by clicking Next-button.



p) Installation starts.

Installin]	×		
Copying file: C\Program\Motoman\Fddwin32\Fddwin32.hlp				
	18%			
	Cancel			

Fig.8 Installation progress counter

- q) After some time you are told to enter disk #2/2.
- r) Insert disk and click on OK-button.

Insert New Disk	×
Place installation disk #2 into the floppy drive and press the OK button.	OK Cancel
Source Pathname:	

Fig.9 Insert disk #2

s) The installation is finished and the last screen appears.

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t) Accept installation by clicking the Finish-button.

FDDWIN32 Installat	ion 🗙	
	Installation Completed!	
₩	The FDDWIN32 has been successfully installed. Press the Finish button to exit this installation.	
		Fig.10 Installation complete
	Kack Finish Cancel	

- complete
- u) Before it is possible to run the software, the hardware key must be installed on the parallel port.

2.2 After installation

After installation, fill in and return the registration card to Motoman **Robotics AB.**

> During installation the main directory is automatically created and all necessary files are installed in the specified drive.

> In the end of the setup a program group (MOTOMAN) and a icon is created. To start FDD for Windows just double-click on the Start Menu.

> If you want to create a shortcut to FDDWIN32, see Windows manual for further information

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2.3 Uninstall

As in all WIN95/NT softwares there are an uninstall facility if you want to remove the software from the hard disk.

- a) Start the **Control panel** from the start menu. Select **Add/Remove** button from the menu.
- b) Mark the line FDDWIN32 from the menu.
- c) Click Add/Remove button.



Fig.11 Mark the FDDWIN32 software

d) Activate uninstall guide by Next-button.



Fig.12 Automatic uninstall

e) End the operation by clicking the Finish-button.



Fig.13 Uninstall

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Communication cable

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3. Communication setup

3.1 Communication cable

Communication between PC and robot controller via RS232C-serial interface. Cable length max. 15 m to each robot-controller. It is possible to use short-distance-modem if the distance is longer.

Com1 and Com3 are 9-pole plugs.

Com2 and Com4 are 25-pole plugs

Cable layout, see figure.



Fig.15 Cabel P/N 347359

3.2 I/O and IRQ setting

For communication the following settings is recommended in the PC.

port	I/O	IRQ
Com1	03F8	4
Com2	02F8	3
Com3	03E8	5
Com4	02E8	9

Setting of I/O and IRQ is made by software in Windows under the icon **Control** panel / ports.

This is the normal setting for Com1 and Com2. For the extra board (Com3 and Com4) it could be needed to move jumpers direct on the board.



3.3 Directories and files

Together with this manual two installation diskettes are included. These diskettes contains the FDD-program in compressed form.

The license is valid for communication with up to four robots from one PC. The hardware key can only be use on one PC at a time.

It is advisable to create separate directories for the robot jobs, name them for example; *robot-1*, *robot-2*, etc, see figure.

For more information, see Windows user's manual.





Files loaded into the PC file system will get an extension of .jbr .jbi .dat .prm .cnd .lst .sys or .hex depending on typ of file.

See further information at the end of this manual.

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Communication setup

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3.4 Communication setup

■ In FDDWIN32

The communication protocol is very special, (for more information see MOTOMAN XRC computer communication User's manual.)

Communication parameters in the PC shall be set as follows:

Baud rate	4800
Data bits	8
Stop bits	1
Parity check	2 (even)

- a) Click on [File] in the menu.
- **b)** Click on [Port setup].

A menu is displayed, normally it's not necessary to make any changes in this settings.

c) When the settings are ok, click on [OK].

🗊 Port Setup		? ×
• Serial Port		
<u>C</u> OM Port :	COM1	-
Baud Rate :	4800	•
Data Length :	8	-
Parity :	EVEN	•
<u>S</u> top Bit :	1	•
	<u>D</u> efault	t
ок с	ancel	

Fig 17	Port	setting	menu
rig.17	1 011	sening	тепи

Robot parameters

To establish communication between XRC robot controller and PC some parameters have to be set.

Contact your MOTOMAN-representative if in doubt.

<u>Type</u>	<u>XRC</u>	Initial setting
	RS000= (* Std. port #1) 0
Data bit	RS50=8	8
Stop bit	RS51=0	0
Parity	RS52=2	2
Baud rate	RS53=6	6
Response timer	RS54=0	0
Text end mon.	RS55=0	0
ENQ retry	RS56=0	0
Data retry	RS57=0	0
Disk size	RS58=3	3
Job overwrite	RS59=0	0



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Hardware connection to XRC

The XRC controller has two 9-pole cable connectors. One 9-pole socket underneath the lid at the short end of the programming pendant = **FDD Port (CN01)**. And a 9-pole socket inside XRC located at CPU unit (XCP01-board) = **Std. port #1**.

The FDD port is used for normal temporary use. The port inside is used for stationary use.

(*) Settings for parameter RS000 (Std. port #1):

- 0 = Not used
- 2 = Data transmission protocol (PC as host)
- 3 = FC1 protocol (FDD software)



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To run FDDWIN32 via Std. port #1 you must set RS000 to value "3"



Hardware key

To be able to run the program it is necessary to apply the hardware key. Mount the hardware key on the parallel port of the PC.

For Windows NT applications, see separate chapter.

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4. FDD functions



4.1 File menu

Select Directory

From this menu you select to which directory you will copy your robot files.

Display File Contents

By first selecting a file in the **File Information** window and then use this command, the choosen file is opened in Windows Notepad.

You can also start Notepad by doubble-click on the file directly.

■ Create directory

A new directory can be created direct from the Select Directory menu. Just write the new name in the "**Directory:**"-box in the right place and click on the **Create**-button. The Windows system can handle (max 255 characters).

■ Overwrite

Under this menu it's possible to set the basic functions for file-copy.

If **Overwrite** is marked when the files are sent from the robot controller the files in the user directory will be written over without warning!

If **Overwrite** is not marked an alarm messages will be sent if the file already exists in the user directory. Erase the file or switch to another user directory.



4.2 Select language

Every time you start FDD for Windows version 4.00 you will be given the facility to choose language for menues and commands.

Select Language		
System		
English		
Swedish		
Finnish		
German		
French	UK	
Spanish		
Italian		
Danish	Cancel	
Norwegian		
Portuguese		
Japanese	 Edit 	
□ Ignore language selection at program start.		
E Default font will be used.		



Choose language and then click on the **OK** button.



Note!

Japanees language can't be displayed in an European computer.

It is even possible to correct and change each word or to create a totally new language file, see separate chapter in this document.

If you don't want to display this window every time you start the FDD software, just mark the line "**Ignore language selection at program start**".

You also have the facility to change the font in the menues. If the "**Default Fonts** will be used" is marked **MS Sans serif** will be used.

If you unmark the funktion a dialogue box from Windows system will appear and you have the facility to choose font (style).



4.3 Help



From the Help menu you get short information about commands, functions, etc. which can be helpful when you run the software.

5. Program structure

FDD is a Windows based communication program for connection between a PC and MOTOMAN industrial robots, controller type ERC, MRC or XRC.

5.1 Files



Fig.21 Data flow

FDD consists of one main file communicating with the user and controlling the main functions. The main file is written in Visual Basic which is a Windows based designer program. Therefore, the functions and the menus are the same as for Windows.

FDD uses the colours set up for Windows, which can be set under the Windows Control panel.

FDD also comprises a DII-file which supervise the communication between the PC and the robot controller. The DII-file is written in Visual C++ and will be installed in the Win.ini-file.

FDD also comprises a fc1.ini-file in which information about main directory and user directory is stored.

FDD for Windows is available in 11 languages:

- -Swedish -Enalish -French -German -Italian -Finnish -Norweigan -Danish (excluded) -Spanish -Portugese (excluded)
 - -Japanese

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5.2 Commands



6. Program running

FDD-program is run (load and save files) from the programming pendant of the controller. The command run from the PC is only for handling of the files in the PC (move files, user directory and open files for printing etc.).

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6.1 File management

The following diagram is an operation flow to show file transfer and management. The operation is performed with the programming pendant.





6.2 Start software

The program is activated in the PC and then run from the robot controller.

- a) Start software Start the program by double-click on the icon, the start menu is shown (Fig. 1).
- b) Select directory

Click on [Select Directory] and choose user directory for file transfer, for more information see Windows manual.

🗊 Select Directory	? ×
Directory :	ок
g:\gemensam\temp	Cancel
🔁 g:\	Calicer
🔄 gemensam	<u>C</u> reate
Drive :	

Fig.22 User directory

- c) When the right directory is stated, click on the [OK].
- d) Activate FDD function Click on [Start FDD]. The communication is now established and all other FDD functions are locked.
- e) Proceed from the programming pendant of the robot controller.

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Running from the robot

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6.3 Running from the robot

■ Main menu för FDD communication

- a) From the [TOP MENU] choose [FD/PC CARD].
- **b)** Choose the appropriate task.

	R1 】 坦 讴 宗
LOAD	SAVE
VERIFY	DELETE
FORMAT	DEVICE
! Turn on servo power	

1) LOAD

Copy files from the computer into the robot controller.

2) SAVE

Copy files from the robot controller into the computer.

3) VERIFY

Compare files in the robot controller with the files in computer. This should always be done to secure correct data transmission.

- 4) DELETE Delete files in the computer.
- 5) FORMAT Not to be used when running FDDWIN32 to a computer.
- 6) DEVICE Select device, FC1, FC2, PC Card, etc.

■ Data that can be saved and save destination file names

The floppy disk display is shown below. Data that can be saved are classified into eight groups. The table on the next page lists the data of the eight groups. The table also shows different file names provided for saving different types of data. Data saved at an external memory unit can be reloaded into the memory of the XRC. Data belonging to the data groups marked with "■" on the FD/PC CARD display (shown below) have restrictions which apply to reloading into memory because they include system-related information.



Note!

Refer to "YASNAC XRC Maintenance manual" for the method to reload into the memory any data belonging to the data groups marked with "■" on the FD/PC CARD display,



	DATA EDIT DISPLAY	UTILITY 급 ⓒ 홍	
	FC1(SAVE) UN-USED ME	M :0.457GB	• <u> </u>
		0	
3	BATCH USER MEMORY	0	
(4) —•		1	
		0	
\bigcirc \frown		0	
8	ALL CMOS AREA	0	
	Imarked data cannot be loaded		

The numbers ${\rm \textcircled{O}}$ through ${\rm \textcircled{B}}$ in the above display correspond to the numbers ${\rm \textcircled{O}}$ through ${\rm \textcircled{B}}$ in the table on the next page.

- 1) Single job selection.
- 2) Single data file selection.
- 3) All files belonging to No. 1 and No. 2 is selected.
- 4) All parameters. Restricted to load.
- 5) I/O data. Restricted to load.
- 6) System Data. Restricted to load.
- 7) Batch CMOS. Restricted to load.
- 8) Whole CMOS memory. Restricted to load.



Note!

When ③ "BATCH USER MEMORY", ⑦ "BATCH CMOS", or ⑧ "ALL CMOS AREA" is selected, jobs are also saved, but the job headers of the saved jobs are not saved to an external memory unit. Saving of job headers is only completed if ① "JOB" is selected to save the data.

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Data	ata That Can Be Saved		File Name (Saved Data)	Save		Load	
				OPER	EDIT	OPER	EDIT
8 A	LL CMOS AREA		ALLCMSxx.HEX	~	~	*	*
0	BATCH CMOS		CMOSxx.HEX	~	~	*	*
	③ BATCH USER	MEMORY	JOBxx.HEX	~	~	~	~
	① JOB	Single job	JOBNAME.JBI	~	~	~	~
		Related job (Job+Condition)	JOBNAME.JBR	~	~	~	~
		Tool data	TOOL.CND	~	~	~	~
		Weaving data	WEAV.CND	~	~	~	~
		User coordinate data	UFRAME.CND	~	~	~	~
		Converted data	VAR.DAT	~	~	~	~
	②FILE/	Arc start condition data	ARCSRT.CND	~	~	~	~
	GENERAL	Arc end condition data	ARCEND.CND	~	~	~	~
	DATA	Welder condition Assist Data	ARCSUP.DAT	~	~	~	~
		Welder characteristic Data	WELDER.DAT	~	~	~	~
		Welder char. definition data	WELDDUDEF.DAT	~	~	~	~
		Shoch detection level data	SHOCKLVL.CND	~	~	~	~
		Servo Gun Pressure Power	SPRESS.CND	~	~	~	~
		Servo Gun Dry Spot Pres-	SPRESSCL.CND	~	✓	~	~
		Spot Gun Characteristic Data	SGUN.DAT	~	~	~	~
		Spot Welder Characteristic Data	SWELDER.DAT	~	✓	~	~
		Short/Full Open Position Data	STROKE.DAT	~	~	~	~
	④ PARAMETER E	ВАТСН	ALL.PRM	~	~	*	~
	④ PARAME-	Robot matching parameter	RC.PRM	~	~	*	~
	TER	System definition parameter	SD.PRM	~	~	*	~
		Coordinate origin parameter	RO.PRM	~	~	*	~
		System matching parameter	SC.PRM	~	~	*	~
		CIO parameter	CIO.PRM	~	~	*	~
		Function definition parameter	FD.PRM	~	~	*	~
		Application parameter	AP.PRM	~	~	*	~
		Transmission(general) parame-	RS.PRM	~	~	*	~
		Sensor parameter	SE.PRM	~	~	*	~
		Servo parameter	SV.PRM	~	~	*	~
		Servo motor parameter	SVM.PRM	~	~	*	~
		Operation Control Parameter	AMC.PRM	~	~	*	✓
		Servo Power Block Parameter	SVP.PRM	~	~	*	✓
		Motion Function Parameter	MF.PRM	~	~	*	✓
		Motion Transmission Parameter	RSM.PRM	~	~	*	✓
		PC Definition Parameter	PCD.PRM	~	~	*	~
	5 I/O DATA	Concurrent I/O program	CIOPRG.LST	~	~	*	✓
		I/O name data	IONAME.DAT	~	~	*	~

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Running from the robot

Data	That Can Be Save	ed	File Name (Saved Data)	Save		Load	
				OPER	EDIT	OPER	EDIT
	© SYSTEM	User Word Registration	UWORD.DAT	~	~	*	~
	DATA	SV monitor signals	SVMON.DAT	~	~	*	>
		Variable name	VARNAME.DAT	~	~	*	~
		Second home position	HOME2.DAT	~	~	*	~
		Alarm history data	ALMHIST.DAT	~	v	*	~
		Home position calibrating data	ABSO.DAT	~	~	*	~
		System Information	SYSTEM.SYS	~	~	*	~

OPER : Operation Mode

EDIT : Edit Mode

★ = Not possible

✓ = OK (possible)

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Select unit

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6.4 Select unit

Selecting a memory unit

- a) Select [FD/PC CARD].
- b) Select [DEVICE].
 - The device select display is shown.



- c) Press [SELECT]. The select dialog is displayed.
- d) In FDDWIN case, select >FC1<, Move the cursor and press [SELECT].

DATA	EDIT	DISPLAY UTILITY	(
FLOPPY DI	SK/PC CARI	D R1 🔪 📛 🖸 🔅	
DEVICE	: <u>FC1</u>		
	FC1		
	FC2		
!			

e) Press [ENTER].

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Load

6.5 Load

To upload data from the external memory unit to the memory of the XRC, follow the procedure in the following.

■ Loading the job

- a) Select {FD/PC CARD} under the top men.
- b) Select {LOAD}.

The floppy disk display is shown.

DATA	EDIT	DISP	LAY	UTILITY
FLOPPY DI	SK/PC CARI) R'	12	
FC2(LOAD)	U	N-USE	D ME	M :123.4 KB
JOB				7
🗌 FILE/GEN	ERAL DATA			0
BATCH U	SER MEMOR	۲Y		0
PARAME1	TER			1
■I/O DATA				0
SYSTEM I	DATA			0
BATCH CI	MOS			0
ALL CMO	S AREA			0
!marked c	lata cannot b	e loade	ed	

c) Select "JOB".

The job list display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	R12	<mark>날 한 동</mark>
FC2(LOAD)		SINGLE	NO.:7
TEST000 ²	TEST00	002 TES	ST0003
TEST0004	4 TEST00	005 TES	ST0006
TEST0007	7		
!			

 d) Select the job to be loaded. The selected job is marked with "*".

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	D R1 ≥	🛓 🖸 🔅
FC2(LOAD)		SINGLE	NO.:7
★TEST00	01 <u>TEST</u>	000 <u>2</u> TE	EST0003
TEST00	04 TEST	0005 TE	EST0006
TEST00	07		
!			



e) Press [ENTER].

The confirmation dialog is displayed.



- f) Select "YES".
 - The job starts loading, and the transmission display is shown.



To cancel loading, press [SELECT].

Once the load operation is completed or cancelled, the job list display is shown.

■ Loading files

- a) Select {FD/PC CARD} under the top menu.
- b) Select {LOAD}.

The floppy disk display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	R1 🔪	🗖 🖸 🔅
FC2(LOAD)	U	IN-USED ME	M :123.4 KB
JOB			8
FILE/GEN	IERAL DATA		0
BATCH U	SER MEMOR	۲Y	0
PARAME	TER		1
□I/O DATA			0
SYSTEM	DATA		0
BATCH C	MOS		0
ALL CMO	S AREA		0
! marked of	data cannot b	e loaded	

c) Select the file group to be loaded. The file select display is shown.



D	ATA	EDIT	DI	SPLAY	UT	ILITY
FLO	PPY DI	SK/PC CARI)	R1 🔪	É⊟ ŤC];s:
FC2	(LOAD)					
	BATCH	I PARAMETI	ER		ALL	.PRM
0	ROBO	T MATCH PF	RMT	R	RC	.PRM
	SYS D	EF PRMTR			SD	.PRM
0	COOR	D ORG PRM	TR		RO	.PRM
	SYS M	ATCH PRM1	R		SC	.PRM
	CIO PF	RMTR			CIO	.PRM
0	FCTN	DEF PRMTR			FD	.PRM
0	APPLI	PRMTR			AP	.PRM
!						

Select the file to be loaded.

The selected data is marked with " \star ". The " \bullet " mark in the display shows the file which exists in the external memory unit (floppy disk).

D	ATA	EDIT	D	SPLAY	UT	ILITY
FLC	PPY DI	SK/PC CAR	D	R1 🔪	旨位	; ;s:
FC2	(LOAD)					
•*	BATCH	H PARAMET	ΈR		ALL	.PRM
0	ROBO	T MATCH P	RMT	R	RC	.PRM
	SYS D	EF PRMTR			SD	.PRM
0	COOR	D ORG PRM	1TR		RO	.PRM
	SYS M	IATCH PRM	TR		SC	.PRM
	CIO PI	RMTR			CIO	.PRM
0	FCTN	DEF PRMTF	2		FD	.PRM
0	APPLI	PRMTR			AP	.PRM
!						

Press [ENTER].

The confirmation dialog is displayed.



d) Select "YES".

The data starts loading, and the transmission display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARE	R12	
FC2(LOAD)			
TRANSMI	TED FILE :	ALL .PF	RM
REST	:	199	968 BYTE
	E ST		
	510		
1			
:			



Once loading is completed or cancelled, the file select display is shown.

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6.6 Save

To download data from the memory of the XRC to the external memory unit, perform the following procedure.

Saving the job

- a) Select {FD/PC CARD} under the top menu.
- **b)** Select {SAVE}.

The floppy disk display is shown.

DATA EI	DIT	DISPLAY	UTILITY
FLOPPY DISK/PC	CARD	R1 🄪	
FC2(SAVE)	UN	-USED ME	M :123.4 KB
JOB			8
GENERAL	DATA		0
BATCH USER M	IEMORY	•	0
PARAMETER			1
I/O DATA			0
SYSTEM DATA			0
BATCH CMOS			0
ALL CMOS ARE	A		0
!marked data ca	annot be	loaded	

c) Select "JOB".

The job list display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	R1 🔪	l⊟ i⊂ is:
FC2(SAVE)		SINGLE	NO.:7
TEST0001	TESTO	002 TES	Г0003
TEST0004	1 TESTO	005 TES	Т0006
TEST0007	7		
!			

d) Select the job to be saved.

The selected job is marked with " \star ".

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	D R1 🔪	노 ː ː ː ː
FC2(SAVE)		SINGLE	NO.:7
★TEST000	01 <u>TEST</u>	0002 TES	ST0003
TEST000	04 TEST	0005 TES	ST0006
TEST000)7		
!			

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Save

e) Press [ENTER].

The confirmation dialog is displayed.



f) Select "YES".

The job starts saving, and the transmission display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARE	R12	<u>'ㅋ で ゞ</u>
FC2(SAVE)			
TRANSMIT	TED FILE :	TEST0001	
REST		:	50 BYTE
	STO	P	
!			

To cancel the save operation, and press [SELECT]. Once saving is completed or cancelled, the job list display is shown.

■ File saving

- a) Select {FD/PC CARD} under the top menu.
- b) Select {SAVE}.

The floppy disk display is shown.

DATA	EDIT		ISPLAY	UTILITY
FLOPPY DI	SK/PC CAF	٢D	R12	🖬 🖸 😹
FC2(SAVE)		UN-l	JSED MEI	M :123.4 KB
JOB				8
FILE/GEN	ERAL DAT	A		0
BATCH U	SER MEMO	DRY		0
PARAME	ΓER			1
□I/O DATA				0
	DATA			0
BATCH C	MOS			0
ALL CMO	S AREA			0
! marked of	data cannot	be l	baded	

c) Select the file group to be saved. The file select display is shown. MOTOMAN ROBOTICS EUROPE

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Save

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	DATA	EDIT	DISP	LAY	U	TILITY
FLC	OPPY DI	SK/PC CARI	D R'	12		: ;s:
FC2	2(SAVE)					
	BATCH	I PARAMET	ER		ALL	.PRM
0	ROBO	Т МАТСН РІ	RMTR		RC	.PRM
	SYS D	EF PRMTR			SD	.PRM
0	COOR	D ORG PRM	ITR		RO	.PRM
	SYS M	ATCH PRM	TR		SC	.PRM
	CIO PF	RMTR			CIO	.PRM
0	FCTN	DEF PRMTF	2		FD	.PRM
0	APPLI	PRMTR			AP	.PRM
1						

d) Select the file to be saved.

The selected data is marked with "★". The "●" mark in the display shows the file which exists in the external memory unit (floppy disk).

C	ΟΑΤΑ	EDIT	DI	SPLAY	UT	ILITY
FLC	OPPY DI	SK/PC CARI)	R1 🔪	La io	;s;
FC2	2(SAVE)					
	BATCH	I PARAMETI	ER		ALL	.PRM
0	ROBO	Т МАТСН РР	RMT	R	RC	.PRM
	SYS D	EF PRMTR			SD	.PRM
0	COOR	D ORG PRM	TR		RO	.PRM
	SYS M	ATCH PRM1	ſR		SC	.PRM
	CIO PF	RMTR			CIO	.PRM
0	FCTN	DEF PRMTR			FD	.PRM
0	APPLI	PRMTR			AP	.PRM
!						

e) Press [ENTER].

The confirmation dialog is displayed.



f) Select "YES".

The data starts saving and the transmission display is shown.

DATA	EDIT	DISPL	AY UTILITY
FLOPPY DI	SK/PC CARI	D R1	▲ 월 10 s:
FC2(SAVE)			
TRANSMI	TED FILE :	ALL	.PRM
REST		:	19968 BYTE
	ST	OP	
!			

To cancel loading, press [SELECT].

If loading is completed or canceled, the file select display is shown.



Saving the CMOS data

To save all user's programs (BATCH USER MEMORY), all data in the CMOS (BATCH CMOS), or all data in the CMOS area (ALL CMOS AREA), a single floppy disk may not be sufficient. In that case, the operator must provide another floppy disk when so instructed by a message on the display.

- a) Select {FD/PC CARD} under the top menu.
- **b)** Select {SAVE}.

The floppy disk display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	D R1 🔪	
FC2(SAVE)	L	JN-USED ME	M :123.4 KB
JOB			8
FILE/GEN	ERAL DATA	١	0
BATCH U	SER MEMO	RY	0
PARAME	ſER		1
□I/O DATA			0
	DATA		0
BATCH C	MOS		0
ALL CMO	S AREA		0
! marked of	lata cannot l	be loaded	

c) Select "BATCH USER MEMORY".

The following display is shown. Please insert the first floppy disk in the external memory unit.



d) Select "EXEC".

The confirmation dialog is shown.



e) Select "YES".

The file starts saving, and the transmission display is shown.

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DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARE	R1 🔪	
FC2(SAVE)			
TRANSMI	TED FILE :	JOB1	.HEX
REST		:	2174 BYTE
	ST	AC	
	510		
1			
•			

To cancel the save operation, press [SELECT].

Files can be created as long as there is still space remaining on the floppy disk. Each file created on the floppy disk is given a file name that includes a serial number (in order of creation).



An error will occur if the operator inserts a floppy disk having the unused area of 2KB or less. Replace it with another floppy disk.

!Not enough memory	T
--------------------	---

f) Insert the floppy disk.

If more data need to be saved when the first floppy disk is full, a message appears to prompt the operator to supply another floppy disk. Remove the current floppy disk, insert another one, and move the cursor to "EXEC" and press [SELECT].



After saving is completed, the floppy disk display is shown.



Overwriting existing files

If the floppy disk contains a file with the same name as the one to be created by the saving process, the confirmation dialog is displayed.



When overwriting the file, move the cursor to "YES" and press [SELECT]. The file in the floppy disk is deleted and the forwarded data is saved. When not overwriting the file, move the cursor to "NO" and press [SELECT]. The save operation can be continued while replacing the new floppy disk.

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Verifying data

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6.7 Verifying data

Follow the procedure below to verify data in the memory of the XRC with similar data saved at the external memory unit.

Note!

This function cannot be executed with "BATCH CMOS" or "ALL CMOS AREA" specified.

Verifying the job

- a) Select {FD/PC CARD} under the top menu.
- **b)** Select {VERIFY}.
 - The floppy disk display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	D R1 🚡 🖥	🖬 🖸 🐹
FC2(VERIF)	Y) U	N-USED MEN	1 :123.4 KB
JOВ			7
FILE/GEN	ERAL DATA	۱	0
BATCH U	SER MEMO	RY	0
PARAME	ΓER		1
I/O DATA			0
SYSTEM	DATA		0
BATCH C	MOS		0
ALL CMO	S AREA		0
! marked of	data cannot b	be loaded	

c) Select "JOB".

The job list display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	R1 🔪	🔄 🖸 🔅
FC2(VERIF	Y)	SINGLE	NO.:7
TEST000 ²	TESTO)02 TES	ST0003
TEST0004	1 TESTO	005 TES	ST0006
TEST0007	7		
!			

d) Select the job to be verified.

The selected job is marked with " \star ".

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CAR	D R1 🔪	🔄 🖸 🔅
FC2(VERIF	Y)	SINGLE	NO.:7
★TEST00	D1 TEST	0002 TE	ST0003
TEST00	D4 TEST	0005 TE	ST0006
TEST00	07		
!			

e) Press [ENTER].

The confirmation dialog is displayed.



f) Select "YES".

The job starts verifying and the transmission display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARD	R12	노 🖸 🔁
FC2(VERIF	Y)		
TRANSMI	TED FILE :	TEST000	1
REST		:	50 BYTE
	STC	P	
!			

To cancel the verifying operation, press [SELECT].

After verifying is completed or cancelled, the job list display is shown.

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Verifying the condition file / universal data

- a) Select {FD/PC CARD} under the top menu.
- **b)** Select {VERIFY}.

The floppy disk display is shown

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	D R1 🔪	
FC2(VERIF	Y) (Y	N-USED MEN	И :123.4 KB
JOB			8
FILE/GEN	IERAL DATA		0
BATCH U	SER MEMO	RY	0
PARAME	TER		1
□I/O DATA			0
SYSTEM	DATA		0
BATCH C	MOS		0
ALL CMO	S AREA		0
! marked of	data cannot b	be loaded	

c) Select the file group to be verified. The file select display is shown.

	DATA	EDIT	DI	SPLAY	UT	ILITY
FLC	OPPY DI	SK/PC CARI)	R1 🔪	<u>'</u> ⊟ to	; ;s:
FC	2(VERIF	Y)				
	BATCH	I PARAMETI	ER		ALL	.PRM
0	ROBO	T MATCH PF	RMT	R	RC	.PRM
	SYS D	EF PRMTR			SD	.PRM
0	COOR	D ORG PRM	TR		RO	.PRM
	SYS M	ATCH PRM1	ſR		SC	.PRM
	CIO PF	RMTR			CIO	.PRM
0	FCTN	DEF PRMTR			FD	.PRM
0	APPLI	PRMTR			AP	.PRM
1						

d) Select the file to be verified. The selected data is marked with "★".

	ΟΑΤΑ	EDIT	DIS	SPLAY	UT	ILITY
FLC	OPPY DI	SK/PC CARI)	R1 🔪	<u>۲</u>] <u>`</u> s:
FC	2(VERIF	Y)				
•	BATCH	I PARAMETI	ER		ALL	.PRM
0	ROBO	T MATCH PF	RMTF	2	RC	.PRM
	SYS D	EF PRMTR			SD	.PRM
0	COOR	D ORG PRM	TR		RO	.PRM
	SYS M	ATCH PRM1	ſR		SC	.PRM
	CIO PF	RMTR			CIO	.PRM
0	FCTN	DEF PRMTR			FD	.PRM
0	APPLI	PRMTR			AP	.PRM
1.						

e) Press [ENTER].

The confirmation dialog is displayed.



f) Select "YES".

The data starts verifying and the transmission display is shown.

DATA	EDIT	DISPL	AY UTILITY
FLOPPY DI	SK/PC CARD	R1	🔰 🔚 🖸 🔅
FC2(VERIF	Y)		
TRANSMI	TED FILE :	ALL	.PRM
REST	:		19968 BYTE
	STO	P	

To cancel the verifying operation, press [SELECT].

Once the verifying is completed or cancelled, the data list display is shown.

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Deleting files

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6.8 Deleting files

Follow the procedure below to delete a file or files from the hard disk in the computer.

Delete the job

- a) Select {FD/PC CARD} under the top menu.
- b) Select {DELETE}. The floppy disk display is shown.

DATA	EDIT	DISPLA	Y UT	ILITY
FLOPPY DI	SK/PC CARI	R1	≥ <u>1</u> ⊒ i⊂] ;s;
FC2(DELET	E) UN	I-USED N	/IEM :12	3.4 KB
JOВ				7
FILE/GEN	ERAL DATA			0
BATCH U	SER MEMOR	RY		0
PARAME	ΓER			1
I/O DATA				0
SYSTEM	DATA			0
BATCH C	MOS			0
ALL CMO	S AREA			0
! marked of	data cannot b	e loaded		

c) Select "JOB".

The job list display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARI	R1 🔪	
FC2(DELET	<u>E)</u>	SINGLE	NO.:7
TEST000 ²	1 TESTO	002 TES	T0003
TEST0004	4 TEST00	005 TES	T0006
TEST0007	7		
!			

d) Select the job to be deleted. The selected job is marked with "*".

DATA	EDIT	DISPL	AY UTILITY
FLOPPY DI	SK/PC CARI) R1	🔰 🖆 🔟 🔅
FC2(DELET	E)	SINGLE	E NO.:7
★TEST00	01 TEST	0002	TEST0003
TEST00	04 TEST	0005	TEST0006
TEST00	07		
!			

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Deleting files

e) Press [ENTER].

The confirmation dialog is displayed.



f) Select "YES".

Once deleting is completed, the floppy disk display is shown.

■ Delete the file

- a) Select {FD/PC CARD} under the top menu.
- b) Select {DELETE}.

The floppy disk display is shown.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CARE	R1 🔪	
FC2(DELET	E) UN	-USED MEN	/ :123.4 KB
JOB			8
FILE/GEN	ERAL DATA		0
BATCH U	SER MEMOR	RY	0
	ΓER		1
🗌 I/O DATA			0
SYSTEM	DATA		0
□ВАТСН С	MOS		0
ALL CMO	S AREA		0
! marked of	data cannot b	e loaded	

c) Select the file group to be deleted. The file select display is shown.

D.	ATA	EDIT	DIS	SPLAY	UT	ILITY
FLO	PPY DI	SK/PC CARI		R1 🔪	└ ìC	<u>`</u> s(
FC2	(DELET	E)	_			
	BATCH	I PARAMET	ER		ALL	.PRM
0	ROBO	Т МАТСН РЕ	RMT	२	RC	.PRM
	SYS D	EF PRMTR			SD	.PRM
0	COOR	D ORG PRM	ITR		RO	.PRM
	SYS M	ATCH PRM1	ΓR		SC	.PRM
	CIO PF	RMTR			CIO	.PRM
0	FCTN	DEF PRMTR	1		FD	.PRM
0	APPLI	PRMTR			AP	.PRM
!						



d) Select the file to be deleted.

The selected data is marked with " \star ". The " \bullet " mark in the display shows the file which exists in the external memory unit (floppy disk).

	DATA	EDIT	D	ISPLAY	UT	ILITY
FLC	OPPY DI	SK/PC CAI	RD	R1 🔪	<u>ل</u> ظ ال	; ;s;
FC	2(DELET	E)				
	BATCH	I PARAME	TER		ALL	.PRM
0	ROBO	Т МАТСН І	PRMT	ſR	RC	.PRM
	SYS D	EF PRMTF	2		SD	.PRM
0	COOR	D ORG PR	MTR		RO	.PRM
	SYS M	ATCH PRM	ИTR		SC	.PRM
	CIO PF	RMTR			CIO	.PRM
0	FCTN	DEF PRMT	R		FD	.PRM
0	APPLI	PRMTR			AP	.PRM
1						

e) Press [ENTER].

The confirmation dialog is displayed.



f) Select "YES".

Once deleting is completed, the floppy disk display is shown.

■ Job selection mode

The selection of jobs to be loaded, saved, compared, or deleted can be performed in different selection modes described below:

✔ Select SINGLE Mode

Only the selected job can be loaded, saved, or verified.

Select RELATED Mode

The selected job and related jobs data and files can be loaded, saved, or verified.



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6.9 Switch select mode



- a) Press the page key in the floppy disk job list display.
 - Each time the page key is pressed the display switches back and forth between the "SINGLE SELECT MODE" and "RELATED SELECT MODE".

DATA	EDIT D	ISPLAY	UTILITY
FLOPPY DI	SK/PC CARD	R1 🔪	
FC2(VERIF)	<u>/)</u> RE	LATED	NO.:7
TEST0001	TEST0002	TES	T0003
TEST0004	TEST0005	TES	T0006
TEST0007	,		
!			

■ How to select job and data files

The method of selecting a job and various data files when loading, saving, verifying, and deleting are described in the following:

✓ Individual Select

Jobs and data files are selected individually one at a time.

✓ Batch Select

Jobs and data files are selected all at one time.

Batch selection can be performed as in the following:

a) Select {EDIT} under the menu in either the floppy disk job list display or the file select display.

The pull down menu is displayed.





b) Select {SELECT ALL}. All jobs are selected.

DATA	EDIT	DISPLAY	UTILITY
FLOPPY DI	SK/PC CAR	D R1 🔪	└⊟ îC ːsː
FC2(VERIF	<u>Y</u>)	RELATED	NO.:7
TEST000	🛯 ★ TESTO	002 ★ TES	T0003
★TEST0004	1 ★ TESTO	005 ★ TES	T0006
★TEST0007	7		
!			

When $\{EDIT\} \rightarrow \{CANCEL SELECT\}$ is selected, the selected item batch operation is cancelled.



6.10 Open a robot job

Files in the PC can be opened (contents).

FDD for Windows g:\gemen File Yiew Language Help Image Image	sam\temp	<
File Information 25points.jbi abso.dat alcms1e.hex all.prm hamta1.jbi hamta2.jbi ioname.dat lag-kant.jbi prov1.jbi sok.jbi sok-1dim.jbi sok-2dim.jbi sok-yh.jbi tool.cnd	Communication Status	ŀ
Robot Files 🔹		

Fig.23 Main menu

- a) Click on Stop FDD.
- b) Mark the wanted file in File information. If where are a lot of files a special type of files can be selected. Under the menu File type it can be set e.g. [*.jbi] which results in that only files ending with (jbi) is shown in the window.
- c) Then click on the **Job**-button. A new menu is shown there different sorts of information can be displayed.



View Header

Gives information about title, tool and other main data.

View Position

Gives information about the axis position in each joint of the job Information is given in pulses not millimetre. (The axis are displayed in the order S,L,U,R,B,T).

View Instruction

Display all instructions in the job such as MOVJ, JUMP, ARCON etc.

Line Sum

Display the number of lines in the job.

Step Sum

Display the number of MOV-instructions in the job.

If the function **File** is used in the main menu all file information is shown in one piece.

Editing a language file

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6.10.A Cut and paste

- a) It is possible to make a printout of the file or use it in documentation etc. by using the Cut & Paste-method.
- **b)** Mark the wanted text by holding the left mouse button and drag across the text. The marked text shall now be marked with "inverted text".
- c) Press and hold the Ctrl-button and C-button simultaneous (Ctrl+C).
- d) Start another text-editor e.g. MS-WORD, Write or Windows/Notepad.
- e) Paste the text in this new program by pressing Ctrl-button and V-button simultaneous (Ctrl+V).
- f) It's also possible to cut out the text from the FDD window by pressing Ctrl-button and X-button simultaneous (Ctrl+X).

NOTE!

The Text is only cut out from the local window, the file will not be change at all!

6.11 Editing a language file

In the dialogue box of the Language selection function there is a button named "**EDIT**". Normally this button is not active but by a simple editing of the **FC1.INI** - file it becomes active. This .ini-file can be edited from the Windows Notepad. When the EDIT-button is active it is possible to edit the language file directly from the Language selection menu.

NOTE!

If you are not a very skilled PC operator you should not edit this files, because it is easy to destroy the syntax!

(Part of the **FC1.INI** - file, found in the **FDDWIN**-directory) ReWrite=False StartDsp=False StartLang=System LangSelect=Yes LangEdit=No ← Change this one to =Yes FontName=MS Sans Serif FontSize=8

Then you have to restart FDD to use the new conditions.

6.12 Create a new language file

When you want to add another language.

Modification can be carried out from the Windows Notepad. If you want to add other language which is not already available, proceed as follows:

("Korean" as an example)

- a) Copy "English.Ing" to "User13.Ing" (Don't rename it to "Korean.Ing".)
- **b)** In the file "User13.lng" you modify row "User13" to "*Korean*" and to "*Local Language Item*". This has to be done in all of the language files.
- c) Make "User13.ico" for a country flag if you need. (Created by VisualBasic software.)
- d) If you add more, continue with "User14.Ing"



Note!

The new languages are not displayed under "System" language. But if you select "User13", you will see Korean language again.

(Example of the first part of an language file)

FORMAT DESCRIPTION FOR LANGUAGE TRANSLATION

Length IndexNo. "English Name", "Local Language Name", Comment

Start:

30 000 "FDDWIN", "FDDWIN", 30 001 "&File", "&Tiedosto", 30 002 "&Ports Setup", "&Sarjaliikenneasetukset", 30 003 "&FDD Setup", "&FDD Asetukset...", 30 004 "&Exit", "&Lopeta", 30 005 "&Language", "&Kieli", 30 006 "&Help", "&Ohje", 30 007 "&Version", "&Versio", 10 008 "Start FDD", "Käynnistä FDD", 10 009 "Directory", "Hakemisto", 10 010 "Job", "Työ", 10 011 "File", "Tiedosto", 10 012 "Exit", "Lopeta", 10 013 "Clear", "Tyhjennä", 10 014 "Review", "Päivitä", 30 015 "File Information", "Tiedostoinformaatio", 30 016 "Communication Status", "Tiedonsiirron tila", 10 017 "Directory", "Hakemisto", 10 018 "File Type", "Tyyppi", 20 019 "View Detail", "Näytä yksityiskohdat", 20 020 "View Simple", "Näytä yksinkertaist.", 10 021 "Quit FDD", "Lopeta FDD",

Menu Command in Main Dialogue Box Command Button in Main Dialogue Box Frame Box in Main Dialogue Box Frame Box in Main Dialogue Box

Title of Main Dialogue Box

Lable in Main Dialogue Box Lable in Main Dialogue Box Option Button in Main Dialogue Box

Option Button in Main Dialogue Box Command Button in Main Dialogue Box MOTOMAN ROBOTICS EUROPE

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Create a new language file

Created: 96-01-31 Revised: 99-11-25 Doc. name: Mrs55000-ch3.fm

7. Trouble shooting

7.0.A Can not open communication port

■ Port setting not correct / not done!

Correct the setting

■ Hardware key missing!

Check if the hardware key is mounted in right place, if there are several parallel ports try another one.

Mount a printer cable in the hardware key socket (does not need to be connected to a printer).

Communication disabled

This occurs if you try to start FDD without beeing connected to the robot controller. Close FDD-software, connect to controller restart FDD-software.

FDD fo	or Windows 🛛 🕅	
⚠	Can not open communication port.	
	ОК	

Fig.25 Error message

7.0.B Select Job file.

■ No file was marked!

Mark file and repeat command.

DD fo	or Windows	\times
⚠	Select Job file.	
	OK	

Fig.26 Select file first

7.0.C Remove Shared Component

Warning at uninstall sequence

A warning may occure when you are removing a software in the Motoman group. A file in Windows system is no longer used by any software. Accept to remove this file by clicking **Yes**.

Remove Shared Component	×
The system indicates that the following shared file is no longer used by any programs and may be deleted.	
C:\WINDOWS\SYSTEM\Tabctl32.ocx	
If any programs are still using this file and it is removed those programs may not function.Leaving this file will not harm your system. If you are not sure what to do, you should select the No to All button. Do you want to remove the shared file?	
Yes No to All	

Fig.27 Warning message

8. Windows NT

As the Windows NT do not use Parallel ports such as LPT1. A parallel port must be set up for the hardware key.

Rainbow Port Driver Microsoft Windows NT.

This version runs only on Intel based machines.

The following files needed to be able to run FDDWIN32 in NT environment. Necessary files are included in one of the disks.

- RAINPORT.DLL Rainbow port driver setup.
- RAINPORT.HLP Help file for RAINPORT.DLL.
- OEMSETUP.INF Installation file for Rainbow port driver.
- RAINVDD.DLL Rainbow virtual device driver.
- RAINPORT.SYS Rainbow port driver.

For installation procedure, see Windows NT manual. More information is found in the file "sentinel.hlp" included in the diskette.

9. FDD-version

By clicking on **Help**-button in the main menu the version No. is displayed. Quit by clicking on **Close**.



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