



INSTALLATION INSTRUCTIONS
for
FANUC 15A CONTROLS
(512K, 1 Megabyte, 2 Megabytes)

NOTE: IF YOU HAVE FAPT (CONVERSATIONAL) ON YOUR CONTROL, DO NOT PROCEED. PLEASE TELEPHONE US.

1. CNC PARAMETER SETTINGS

Turn control "ON". Have a normal screen appear.

Note that under your control screen you have a row of soft keys, which are distinct from the keys on the MDI (Manual Data Input) keypad to the right of the screen.

Press "LEFT ARROW" soft key twice.
Press "SETTINGS" soft key once.

On SETTING (HANDY) screen, write down INPUT UNIT value (whether it is one or zero). You will need this information in Step 9 below.

Select MDI mode. Press "PAGE UP" on MDI keypad.
This gives you the 8000 parameter on the SETTINGS (SERVICE) screen.

Change all bits to "1" for the 8000 parameter.
Do this by pressing "1" on the MDI keypad, and then soft key "ON = 1".
Bit "0" sets the PWE (Parameter Write Enable).

Press "SERVICE" soft key. This brings up the PARAMETER (SETTINGS) screen which you must copy down and change certain parameters.

We provide space on the next page for you to write these parameters down.



You may be using **PORT 1 (CD4A)** or **PORT 2 (CD4B)** on your Base-0 board. Select the appropriate column and make the following changes:

Copy Down Parameter	Then set to: for Port 1 (CD4A)	Then set to: for Port 2 (CD4B)
0000	00001010	00001010
0020	1	2
0021	1	2

Using the MDI numeric keypad, key in 5000 and press the soft key "INPUT_NO.".

5001	1	unchanged
5002	unchanged	2
5110	8	Unchanged
5111	2	Unchanged
5112	10	Unchanged
5120	unchanged	8
5121	unchanged	2
5122	unchanged	10

NOTE: After **COPYING** the above parameters, must then **CHANGE** them as indicated above.

In order for your computer to be able to communicate with the control, make sure settings in your communications software correspond to:

BAUD RATE 4800

two stop bits

parity EVEN

seven data bits.

Both PROCOMM (version 2.4.2) and TELIX communication software work well with these instructions.



NOW YOU MUST BACK UP EVERYTHING.

Back up all data - all part programs, all offsets, NC and PC parameters, etc.

To save this information, OUTPUT it via the serial port to a personal computer. Once you have downloaded everything, check that it is correct. We suggest you put this file on a computer text editor and check the data.

2. SAVING PART PROGRAMS

Verify that your 8000 and 9000 series parameters are UN-protected.

- For 8000 parameters, set parameter 0011, bit 0, to zero to unprotect.
- For 9000 parameters, set parameter 2201, bit 0, to zero to unprotect.

Make sure your personal computer is set up to receive your part program file.

Press "LEFT ARROW" soft key twice.

Press soft key "PROGRAM".

Press "RIGHT ARROW" soft key twice.

Press "PUNCH" soft key.

Press "ALL" soft key.

3. OUTPUT TO YOUR COMPUTER TO SAVE NC PARAMETERS.

Press "SERVICE" soft key to get PARAMETER(SETTINGS) screen.

Make sure your personal computer is set up ready to receive your NC Parameter File.

Press "RIGHT ARROW" soft key twice.

Press "PUNCH" soft key.

Press "ALL" soft key.

Note that the word 'PUNCH' will flash while it is uploading.

4. OUTPUTTING OFFSETS

Make sure your personal computer is set up ready to receive your Offsets file

Press "OFFSET" soft key.

Press "RIGHT ARROW" soft key.

Press "PUNCH" soft key.

Press "ALL" soft key.



The word "PUNCH" will flash while uploading.

5. OUTPUTTING PC PARAMETERS.

Make sure your personal computer is set up ready to receive your PC Parameter file.

Set PWE (parameter write enable) switch if not already turned ON(as per our earlier instructions in paragraph One).

Press "E-STOP".

Press "PCPRM" soft key.

Press "KEEPRL" soft key.

On the MDI keypad in the lower left corner, press the double left arrow key to get the pointer to KeepRelay #18 (this will bring up K17)

Set K17 bit 7 to one. (Enter 10000000 and press "INPUT" on MDI keypad.)
This permits entry of PC parameters.

Press "LEFT ARROW" soft key.

Press "RIGHT ARROW" soft key.

Press "SYSPRM" soft key.

Choose "PG CHANNEL" on screen.

Change the zero to one (by pressing "1" and "INPUT" on the MDI keypad.

Press "LEFT ARROW" soft key.

Press "I/O" soft key.

Press "FDCAS" soft key.

Press "OUTPUT" soft key.

Press "PARAM" soft key.

Press "ADD" soft key.

Press "EXEC" soft key.

The word "EXECUTING" will flash while uploading.

Your control screen will say "OUTPUT COMPLETED".



NOW YOU ARE READY TO INPUT DATA FROM YOUR COMPUTER TO THE CONTROL.

6. INSTALLING THE RAM FILE BOARD

Turn Control OFF

Insert the 512k/1megabyte/2megabyte board in your backplane
Look in your maintenance Manual for your backplane diagrams.

The recommended location for this board is **Slot 01P27**.
However, this board can be installed in any empty slot.
(For example, if the Base2 board has a sub-board mounted on it, there will not be room in slot 01P27.)

Tighten screws after inserting the board.
Remove the battery connector from the BASE0 board and plug it into the RAM File board.
Plug the cable which is soldered to the RAM file board into the connector on the BASE0 board.

Turn the control ON, While pressing “7” and “9” on the MDI keypad.

Keeping the “7” and “9” pressed erases all information in the system.
Keep “7” and “9” pressed until you see “CLEAR FILE” come up on the screen.

Exit IPL screen by pressing “6” and then “INPUT” on the MDI keypad.
You will see many alarm messages because none of your parameters have been entered. Ignore these alarms.

Press “LEFT ARROW” soft key twice.

Press “SETTING” soft key twice. This will give you the SETTINGS(SETTINGS) SCREEN.

Press “PAGE UP” on the MDI keypad. This will bring up the 8000 parameter on the screen.

Press “1” on the MDI keypad.

Press soft key “ON:1”. This turns ON all of the bits in the 8000 parameter.

Press “LEFT ARROW” soft key and then press “SERVICE” soft key.

Enter changed parameters previously written down by hand (as directed at the



beginning of these upgrade instructions.

YOU ARE NOW READY TO COMMUNICATE WITH YOUR PERSONAL COMPUTER TO INPUT PARAMETERS.

7. TURNING ON INCREASED MEMORY IN YOUR 15A

Using a STANDARD TEXT EDITOR on your personal computer, EDIT the following NC parameters.

Parameter N9120

Set bits 0, 2, 3 and 5 to zero.
(It will read xx0x00x0 where x is unchanged.)

Parameter N9110

Set bit 4 to zero.
(It will read xxx0xxxx where x is unchanged.)

Parameter N9134

For 512K memory, turn Parameter 9134, bit 0 to one.
For 1 Megabyte, turn Parameter 9134, bit 1 to one.
For 2 megabytes, turn Parameter 9134, bit 2 to one.

NOTE:

The above are all memory parameter bits. **Only one can be turned ON.**

SAVE THESE CHANGES.

8. INPUTTING NC PARAMETERS FROM COMPUTER.

Do step 8 twice, turning the control OFF and ON after the first time.

Press "RIGHT ARROW" soft key twice.

Press "READ" soft key.

Press "ALL" soft key.

The word "READ" will be flashing on your screen.

Set your personal computer to download the modified NC Parameter File to your control.

Press "ENTER" on your computer to begin downloading data.

You will see "LOCKED PARAMETER" on your screen. Ignore this.

When "READ" stops flashing on your screen, downloading is complete.

Turn control OFF, wait a few seconds, then turn control back ON.



REPEAT STEP 8.

9 INPUTTING PC PARAMETERS FROM COMPUTER.

Prepare your computer to input the PC Parameter File to your control.

Since you have turned OFF your control, you must again set PWE (parameter write enable)

Once again, get the SETTINGS(SERVICE) SCREEN.

Call up Parameter 8000.

Change bit 0 (PWE) to one, which will enable the parameters to be changed.

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IMPORTANT:

Before you operate your control you **MUST CHANGE** on the SETTINGS(HANDY) page the INPUT UNIT to the value you previously recorded in Step One – **OTHERWISE THE MACHINE COULD CRASH. MAKE THE CHANGE NOW!**

On the control, press the “NC/PC” key.

Press the right arrow key.

Press the “EDIT” soft key.

Press the right arrow key again.

Press the “PASWRD” soft key.

Press the “ENAON” soft key.

Press the left arrow key twice.

Press the right arrow key once.

Press the “PCPRM” soft key.

Press the Right soft key

Press the “MODE” soft key

Select the data transfer rate to be the same as in parameter 5112.



Press the “KEEPRL” soft key.

On the MDI keypad in the lower left corner, press the double left arrow key TWICE to get you to KeepRelay #18. This is address K17. Make sure you are on the right line.

Set K17 bit 7 to a one (Enter 10000000 and press “INPUT” on the MDI keypad). This permits entry of PC Parameters.

Press the right arrow key.

Press the “LEFT ARROW” soft key.

Press the “RIGHT ARROW” soft key.

Press the “SYSPRM” soft key.

Choose “PG Channel” on the screen. Change the zero to one (by pressing “1” and “INPUT” on the MDI keypad).

Press the “LEFT ARROW” soft key.

Press the “I/O” soft key.

Press the “FDCAS” soft key.

Press the “INPUT” soft key.

Press the “EXEC” soft key.

YOU ARE NOW READY TO INPUT THE PC PARAMETER FILE FROM YOUR COMPUTER TO YOUR CONTROL.

From the computer, send the PC Parameter file.

Your control screen will say “INPUT COMPLETED”.

Press the “LEFT ARROW” soft key.

Press the “RUN” soft key.

Now on the MDI keypad, press “NC/PC”

Set PWE to zero.(parameter 8000, bit 0.)



Switch to "EDIT" mode.

Now you must re-load all of your part programs, all offsets, and any other data you had in your control prior to beginning this upgrade, as required.

YOUR MEMORY UPGRADE IS COMPLETED.

If during the saving of part programs to a personal computer (at Step Two) you unlock the 8000 and 9000 parameters, **YOU MUST NOW RE-LOCK THEM.** Press the "NC/PC" key to change back the NC parameters to the way they were before (which is probably how you want them to be in order to operate your machine tool.)



HEXADECIMAL
CONVERSION SHEET

	PARAMETER	B	I	T	#						IN HEX =	(OP #)
	BIT NUMBER	7	6	5	4	3	2	1	0			
	BIT VALUE	8	4	2	1	8	4	2	1			
	9100											OP 1
	9101											OP 2
	9102											OP 3
	9103											OP 4
	9104											OP 5
	9105											OP 6
	9106											OP 7
	9107											OP 8
	9108											OP 9
	9109											OP 10
	9110											OP 11
	9111											OP 12
	9112											OP 13
	9113											OP 14
	9114											OP 15
	9115											OP 16
	9116											OP 17
	9117											OP 18
	9118											OP 19
	9119											OP 20
	9120											OP 21
	PARAMETER	B	I	T	#						IN HEX =	(OP #)



BIT VALUE	8	4	2	1	8	4	2	1			
9140											OP41
9141											OP42
9142											OP43
9143											OP44
9144											OP45
9145											OP46
9146											OP47
9147											OP48
9148											OP49
9149											OP50
9150											OP 51
9151											OP 52
9152											OP 53
9153											OP 54
9154											OP 55
9155											OP 56
9156											OP 57
9157											OP 58
9158											OP 59
9159											OP60
YOU MAY HAVE MORE OF THESE ON NEWER CONTROLS IF SO YOU MUST GET ALL OF THEM											
PARAMETER	B	I	T	#					IN HEX =		(OP #)
BIT NUMBER	7	6	5	4	3	2	1	0			
BIT VALUE	8	4	2	1	8	4	2	1			



THE SYSTEM 12 MAY HAVE THE FOLLOWING											
ADDITIONAL PARAMETERS											
	9200										OP 50
	9201										OP 51
	9202										OP 52
	9203										OP 53
	9204										OP 54
	9205										OP 55
	9206										OP 56
	9207										OP 57



NOTE CONCERNING PROTECTED PROGRAM SERIES

In order to download/upload/edit/etc. the 9000 series programs, and also the 8000 series programs, you will have to un-protect them.

The following table gives the parameters governing this.

CONTROL	PROGRAM #s	PARAMETER	BIT #	TO PROTECT	TO UN-PROTECT
0	9000	10	4	one	zero
6	9000	318	7	one	zero
10	9000	2201	0	one	zero
11	9000	2201	0	one	zero
12	9000	2201	0	one	zero
15	9000	2201	0	one	zero
16/18	9000	3202	4	one	zero
6	8000	319	7	one	zero
10	8000	11	0	one	zero
11	8000	11	0	one	zero
12	8000	11	0	one	zero
15	8000	11	0	one	zero
16/18	8000	3202	0	one	zero

Bits read from right to left: 7 6 5 4 3 2 1 0
 Thus bit 0 is on the far right, and bit 7 is on the far left.

NOTE:

On certain controls there may or may not be a range of program numbers protected.

For 10, 11, 12 and 15 controls look at your parameters 2210, 2211, 2212 and 2213, and for 16/18 (A/B/C/i) controls, look at parameters 3210, 3211, 3212 and 3213. If you have anything except zero's in these parameters, please consult your Fanuc Operator's Manual for the unprotect parameter.