

**Fanuc 11/12 Installation Instructions
for
FANRAM MEMORY BOARDS with AUTOLOAD FEATURE**

All the data in your old BMU (Bubble Memory Unit) board will have to be re-entered into your new FANRAM board during installation. Therefore, you will have to copy the information that needs to be re-entered (such as all part programs, macros, parameters [NC & PC], timer data, keep relays, positioning data, pitch error compensation data, etc.).

Some of this data must be copied down by hand, and some of it can be downloaded to tape or computer. (Please consult your control manuals for how to do this.)

Note that all this data is retained in your BMU board, even when it is removed from the control, and hence can be retrieved, if necessary, by re-installing the BMU.

AUTOLOAD CANNOT BE USED IF YOUR BMU BOARD IS DEFECTIVE

NOTE: AUTOLOAD works only if you are using 100 part programs.

Check Parameter 9110, bit 1 (which is 200 programs) and bit 2 (which is 400 programs). If either of these bits are turned on, you cannot use AUTOLOAD. In that case, use the enclosed NON-AUTOLOAD instructions.

NOTE ABOUT ABSOLUTE POSITION ENCODERS:

If your control has absolute position encoders, then you must RETURN ALL AXES TO THEIR ZERO POSITION BEFORE you begin a memory upgrade. Otherwise, you will lose your position.

**PLEASE HANDLE BOARDS BY THEIR EDGES SINCE THEY CAN BE DAMAGED BY STATIC
ELECTRICITY FROM YOUR BODY.**

1. Copy parameter 9000 and parameters 9100 through 9139 (Option numbers 1 ~ 40). For the 12 series controls (not the 11 's), also copy parameters 9200 ~ 9207 (Option numbers 50 ~ 57). (Note that your particular control may not use all these options).
 - a. Use the attached HEXADECIMAL CONVERSION SHEET to convert these parameters from binary form into hexadecimal form. They have to be re-entered later on in hexadecimal form.
2. Part programs and tool offsets and custom macro variables have to be downloaded to a computer, or punched out to a paper tape. Consult your Operator Manual for how to do this.
3. Turn control off. For safety reasons, turn off main disconnect switch as well.
4. Open control cabinet. Carefully remove BMU board, located to the left of the power supply, by unscrewing top and bottom screws.

5. Install your new FANRAM memory board in the BMU space. Make certain that the board is well-seated and that the screws are tightened adequately.
6. Now clear the FANRAM board. Press "7" and "9" keys simultaneously, and while holding them, turn control power ON. This clears all memory. Then you will see the "IPL" (Initial Program Load) screen with the "CHECK SYSTEM LABEL: ERROR" message.
7. Press the "9" button twice, and then "INPUT", to enable system label generation.
8. Press the "Y" button to generate system label.
9. Answer the "NUMBER OF AXES ?" question that comes on screen, and then press "INPUT".
 - a. **NOTE:** " NUMBER OF AXES " refers to the number of CONTROL AXES, which are displayed on the POSITION screen, but NOT those auxiliary axes not controlled by the CNC itself. Be careful here, for things such as a rotary table can be EITHER controlled by the CNC (if purchased that way), or can be an auxiliary controlled axis through the PC or by its own control.
 - b. Parameter 9000 gives you the answer to " NUMBER OF AXES ?".
10. For the 12 series controls, also answer the question "NUMBER OF SERVO AXES?".
11. Enter the options called "OPTIONS 1 through 40" (9100 series), as necessary. Press "INPUT" button for unused options. For the 12 series of controls, enter "OPTIONS 50 through 57".
12. The screen will ask you to erase certain files (PC/NC parameters, etc.). Press "Y" to this question.
13. Exit the "IPL" mode by pressing "6" and "INPUT".
14. An ALARM message will appear because parameters have not been set up.

AUTOLOAD PROCEDURE

15. Turn control off.
16. Take the old BMU board and plug its connector into the socket on your new FANRAM board. (Have someone hold the old BMU board in place, plugged into the FANRAM board's socket, during this phase.)
17. Turn control on.
18. Wait until the normal screen shows. Now page through TOOL OFFSETS. (This transfers the tool offsets from the BMU to the FANRAM board.)
19. Turn control off. **Remove the old BMU board from the FANRAM board.** (Be certain you remove the BMU from the FANRAM board, because the next step will erase all part programs, including the 8000 and 9000 series programs.)

20. Turn the control back on while simultaneously keeping the "." (period) and "-" (minus) buttons pressed. Keep these pressed until the "IPL" menu shows up.
21. Press "3" and then "INPUT" buttons to enable deleting of files.
22. Select Option 15 from the menu (i.e., enter "1", "5", and "INPUT").
23. Press "RESET" pushbutton.
24. Exit from "IPL" mode by pressing "6" and "INPUT" buttons.
25. VERIFY now that ALL data (parameters, etc., but not part programs or macros) have been transferred correctly. Re-enter data that appear to be missing or incorrect.
26. Re-load your part programs and macros.
27. If trouble develops, please re-check all parameters. They are easily entered incorrectly when manually loaded.
28. Your installation is now completed.

NOTE:

If the AUTOLOAD does not work completely (due to the system configuration of particular, rarely-found controls), you will have to enter any missing data by hand or through the serial port.

If you get a "SYSTEM ERROR" message, start again from Step #6 (because perhaps all data has not been completely erased).

If you have repeated this and still get a "SYSTEM ERROR", you will have to start over from the beginning and enter data manually, using the non-AUTOLOAD installation instructions (which are also enclosed).

Please note that **AUTOLOAD** has been designed to work with the slower bubble memory boards (BMU's).

Trying to use AUTOLOAD with the faster FANRAM memory boards will result in incomplete data transfer therefore AUTOLOAD can only be used to transfer data from a BMU to a FANRAM board.

If you have any questions, please call us. We are always ready to help.

Phone: (289) 389 6117

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**Fanuc 11/12 Installation Instructions
for
FANRAM MEMORY BOARDS (non-AUTOLOAD)**

All the data in your old BMU (Bubble Memory Unit) board will have to be re-entered into your new FANRAM board during installation. Therefore, you will have to copy the information that needs to be re-entered (such as all part programs, macros, parameters [NC & PC], timer data, keep relays, positioning data, pitch error compensation data, etc.).

Some of this data must be copied down by hand, and some of it can be downloaded to tape or computer. (Please consult your control manuals for how to do this.)

Note that all this data is retained in your BMU board, even when it is removed from the control, and hence can be retrieved, if necessary, by re-installing the BMU.

NOTE ABOUT ABSOLUTE POSITION ENCODERS:

If your control has absolute position encoders, then you must RETURN ALL AXES TO THEIR ZERO POSITION BEFORE you begin a memory upgrade. Otherwise, you will lose your position.

1. Copy the "HANDY" settings.
2. Copy the following "SERVICE: SETTINGS" parameters:

0 =	5121 =
21 =	5122 =
22 =	5130 =
23 =	5131 =
5001 =	5132 =
5002 =	5140 =
5011 =	5141 =
5011 =	5142 =
5013 =	5150 =
5110 =	5151 =
5111 =	5152 =
5112 =	5160 =
5120 =	5162 =

3. Copy parameters 9000, 9100 through 9139 (Option numbers 1 through 40).
4. For the 12 series controls (and not the 11 's), also copy parameters 9200 through 9207 (Option numbers 50 through 57). (Note that your particular control may not use all these options).
5. Use the attached "CHANGING FROM BINARY TO HEXADECIMAL" sheet to convert these parameters from binary form into hexadecimal form. They have to be re-entered later on in hexadecimal form.
6. Write down the Work Zero offsets

7. Write down the PC parameters: TIMER, COUNTR, KEEPRL, DATA, POS.
Any or all of these could consist of multiple pages.
8. The following data has to be downloaded to a computer, or punched out to a paper tape: parameters, pitch error compensation, part programs, tool offsets. Consult your Operator Manual for how to do this.
9. Turn control off. For safety reasons, turn off main disconnect switch as well.
10. Open control cabinet. Carefully remove BMU board, located to the left of the power supply, by unscrewing top and bottom screws.
11. Install your new FANRAM memory board in the BMU space. Make certain that the board is well-seated and that the screws are tightened adequately.
12. Now clear the FANRAM board. Press "7" and "9" keys simultaneously, and while holding them, turn control power ON. This clears all memory. Then you will see the "IPL" (Initial Program Load) screen with the "CHECK SYSTEM LABEL: ERROR" message.
13. Press the "9" button twice, and then "INPUT", to enable system label generation.
14. Press the "Y" button to generate system label.
15. Answer the "NUMBER OF AXES?" question that comes on screen, and then press "INPUT".
16. **NOTE:** " NUMBER OF AXES ?" refers to the number of CONTROL AXES, which are displayed on the POSITION screen, but NOT those auxiliary axes not controlled by the CNC itself. Be careful here, for things such as a rotary table can be EITHER controlled by the CNC (if purchased that way), or can be an auxiliary controlled through the PC or by its own control.
17. Parameter 9000 gives you the answer to "Number of axes?". (For Fanuc 12 controls, also answer the question "NUMBER OF SERVO AXES".)
18. Enter the option called "OPTIONS 1 through 40" (9100 series), as necessary. Press "INPUT" button for unused options. For the 12 series of controls, enter "OPTIONS 50 through 57".
19. The screen will ask you to erase certain files (PC/NC parameters, etc.). Press "Y" to this question.
20. Exit the "IPL" mode by pressing "6" and "INPUT".
21. An ALARM message will appear because parameters have not been set up. Continue with normal re-loading of all data, using your control's instruction manuals.
22. If trouble develops, please re-check all parameters. They are easily entered incorrectly when manually loaded.
23. Your installation is now completed.

PLEASE HANDLE BOARDS BY THEIR EDGES SINCE THEY CAN BE DAMAGED BY STATIC ELECTRICITY FROM YOUR BODY.

If you have any questions, please call us. We are always ready to help.

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TULIP STANDARD WARRANTY POLICY

All boards and kits manufactured by TULIP ELECTRONICS INC. carry a **THREE-YEAR** replacement or repair warranty from the date of purchase. If a product is replaced during its warranty period, the warranty is not extended beyond the original end date.

We will repair or replace, at our option, a defective product free of charge, exclusive of freight/duty/ taxes/etc.

This warranty applies only to the extent as stated and does not extend to any direct or consequential damages that may occur from the use of our product.

Out-of-Warranty Tulip Memory Boards:

Once the warranty has expired on products manufactured by TULIP, we offer to trade in a defective old board for new product and new product warranty, to the original purchaser only, at 50% (fifty per cent) of the then current list price.

Warranty Shipping:

The customer pays shipping/brokerage/insurance/ duties/taxes/clearance fees (if any) one way to TULIP. We prefer that you ship to us using couriers.

NOTE: A \$60 shipping/brokerage/handling fee is charged for each replacement item.

US Customs currently rates our memory replacements duty-free (also called "zero-rated) for entry into the USA.

AN RMA (return authorization) IS REQUIRED FOR ANY PRODUCT BEING RETURNED TO TULIP.

Effective October 26, 2010

NOTE CONCERNING PROTECTED PROGRAM SERIES

In order to download, upload or edit the 8000 and 9000 series part programs (often called macro programs) you may have to un-protect them with a parameter change.

The following table gives the parameters governing this.

<u>CONTROL</u>	<u>PROGRAM #s</u>	<u>PARAMETER</u>	<u>BIT #</u>	<u>TO PROTECT</u>	<u>TO UN-PROTECT</u>
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 zeros in these parameters, please consult your Fanuc Operator's Manual for the unprotect parameter.