

OPERATION MANUAL

Pallet Program Registration Screen

2-pallet APC Type

FANUC i Series

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1. Overview

The pallet program registration supports workpiece setup on the 2-pallet APC. If you register a machining program for each pallet of the 2-pallet APC on the registration screen, the APC will automatically search for the programs at startup, enabling continuous cycle-start.

REGISTRATION

PAGE01/01

The screenshot displays the REGISTRATION screen with the following elements:

- PALLET 1** section: MACHINED (checkbox), PROGRAM NO. (1111), MACHINING (ON).
- PALLET 2** section: PROGRAM NO. (2222), MACHINING (ON).
- PROGRAM SEARCH** (ON).
- PROGRAM START** (OFF).
- EXECUTING PROGRAM** (01111).
- NUM=** >^
- MDI** status bar: S 0 T0000, 11:04:24.
- Bottom row of buttons: ON, OFF, and several empty buttons.

The display may differ depending on the actual settings.

2. Names and Functions

(1) PALLET 1

Displays the program number and machining status. When a pallet is in the machine, "MACHINED" is displayed to the right of PALLET 1.

PALLET 1	MACHINED
PROGRAM NO.	1111
MACHINING	ON

(2) PALLET 2

Displays the same content as PALLET 1 above, but for PALLET 2.

PALLET 2	
PROGRAM NO.	2222
MACHINING	ON

(3) PROGRAM SEARCH

Sets program search to ON or OFF so that it is performed or not performed after APC operation. The field displays the program search status.

PROGRAM SEARCH	ON
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(4) PROGRAM START

Sets continuous program start to ON or OFF so that the program automatically starts again after a program is searched. The field displays the program start status.

PROGRAM START	OFF
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(5) EXECUTING PROGRAM

Displays the program numbers currently in execution.

EXECUTING PROGRAM	01111
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(6) Menu keys



Use this key to enable machining, program search, or continuous startup.



Use this key to disable machining, program search, or continuous startup.

3. Operations and Settings

3.1 Creating Machining Programs

Create a machining program so that it terminates at M60;M02; or M60;M30;.

For all turn APC pallets

```
Oxxxx;
(machining program)
M60;
M02; or M30;
%
```

For shuttle APC pallet No. 1

```
Oxxxx;
(machining program for pallet No.1)
M60; ..... Moving pallet No. 1 out
G30 Y0;
M60; ..... Moving pallet No. 2 in
M02; or M30;
%
```

For shuttle APC pallet No. 2

```
Oxxxx;
(machining program for pallet No.2)
M60; ..... Moving pallet No. 2 out
G28 Y0;
M60; ..... Moving pallet No. 1 in
M02; or M30;
%
```

Caution Program search is not performed if you do one of the following operations after M60.

- Change the operation mode.
- Press the NC RESET key.
- Turn the machine into emergency stop status.
- Do not execute M02 or M30 within 60 seconds of an M60 execution.

Caution Set PROGRAM SEARCH to OFF if you use a program like the one shown below.

```
Oxxxx;
M60;
(machining pallet 1)
M60;
(machining pallet 2)
M02; or M30;
%
```

3.2 How to Display Pallet Program Registration Screen



- (1) Press the **CUSTOM** function key.



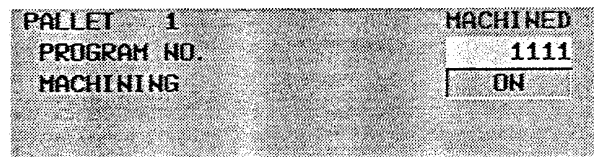
- (2) Press **PALLET**. The pallet program registration screen is displayed.

3.3 Setting Program Numbers

You can set a program number to the pallet in the APC when APC operation is not in process. You cannot change the program number while machining or during an APC cycle.

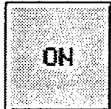

Use   to move the cursor.

- (1) Move the cursor to the PROGRAM NO. field.
Enter the desired program number, then press the **INPUT** key to confirm the setting.



- (2) Set to turn ON or OFF machining. In general, set both Pallets 1 and 2 to ON. Move the cursor to the MACHING field.



Press  or  to set as required.

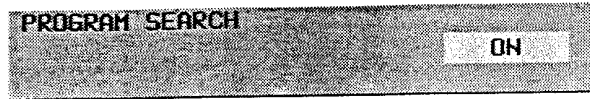
3.4 Setting Pallet Program Search


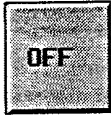
You can search programs only in the MEMORY mode. When PROGRAM SEARCH is ON, the program number for the pallet in the machine is searched. When PROGRAM SEARCH is OFF, the program search is not performed.

Operation procedure:

- (1) Move the cursor to the PROGRAM SEARCH field.

Use   move the cursor.



- (2) Press  or  to set as required.



Note You can use this function with PROGRAM START:
When PROGRAM START is ON, an APC cycle starts after the program search is performed. When PROGRAM START is OFF, the program search is performed, but an APC cycle does not start.

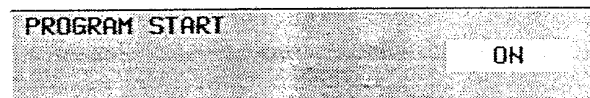
3.5 Setting Continuous Start

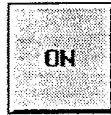
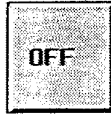
When PROGRAM START is ON, an APC cycle starts after the program search is performed. When PROGRAM START is OFF, the program search is performed, but an APC cycle does not start.

Operation procedure:

- (1) Move the cursor to the PROGRAM START field.

Use   move the cursor.



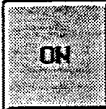
- (2) Press  or  to set as required.


Note This function depends on the PROGRAM SEARCH setting:
When PROGRAM SEARCH is ON, the operation above is executed.
When PROGRAM SEARCH is OFF, neither program search nor APC cycle starts.

3.6 Settings for One Pallet Operation

Move the cursor to the MACHINING field, then set machining to ON or OFF for each pallet.

PALLET 1	MACHINING
PROGRAM NO.	1111
MACHINING	ON

Press  if you want to turn ON the pallet.

Press  if you want to turn OFF the pallet.

Example: Operation procedure for machining with one pallet only

To get ready for machining:

- (1) Mount the desired workpiece on PALLET 1. Now the machine has PALLET 2; and the APC has PALLET 1.

To start machining:

- (2) Manually search O7981, then start an APC cycle.
- (3) When PALLET 1 moves into the machine, program search is performed. An APC cycle then automatically starts. A workpiece is automatically mounted to PALLET 2. Now the machine has PALLET 1; and the APC has PALLET 2.

To terminate machining:

- (4) When machining for the workpiece on PALLET 1 completes, PALLET 1 moves into the APC.
- (5) The pallet program stops. Now the machine has PALLET 2; and the APC has PALLET 1.

To get ready for the next machining:

- (6) Mount the next workpiece, then start an APC cycle. As O7981 has already been searched, you do not need to perform a further search. When machining completes, repeat the procedure above.

3.7 Workpiece Replacement Program

When you set MACHINING to OFF for a specific pallet, program O7981 is available to take the pallet away. If you use this program, the registered program number is ignored.

Workpiece replacement program for turn APC:

```
O7981;  
G91G28Y0Z0;  
G30X0;  
M60;  
M02;  
%
```

Workpiece replacement program for turn APC (only for PG8):

```
O7981;  
G91G28Z0;  
G30X0Y0;  
M60;  
M02;  
%
```

Workpiece replacement program for turn APC (only for VP):

```
O7981;  
G91G28Z0;  
G28X0Y0;  
G30Y0;  
M60;  
M02;  
%
```

Workpiece replacement program for shuttle APC:

```
O7981;  
G91G28X0Y0Z0;  
M60;  
G30Y0;  
M60;  
G28Y0;  
M60;  
M02;  
%
```

Caution Program No. O7981 is fixed for workpiece replacement. Do not make any changes to O7981. Program specifications are subject to change without notice.

3.8 Operational Messages

(a) **PALLET RUNNING**

This message is displayed if you attempt to register a program for the pallet in the machine. You are not allowed to change the program for the pallet in the machine. Change the program after the pallet moves into the APC.

(b) **APC EXECUTING**

This message is displayed if you attempt to register a program during APC cycle. You are not allowed to change the program during APC cycle. Change the program after the APC cycle completes.

(c) **SETTING ERROR**

This message is displayed if you entered an invalid value in the PROGRAM NO. field or any of the ON/OFF setting fields. Check the settings, then correct any incorrect values.

3.9 Automatic Power off

When automatic power off is enabled, the power automatically turns off when the following conditions are met depending on the PROGRAM START setting.

(1) M02/M30

When PROGRAM START is OFF, the power turns off.

When PROGRAM START is ON, the power does not turn off.

(2) M60

Regardless of the PROGRAM START setting, the power turns off if there is no pallet with workpiece-set at the time of M60 execution.

3.10 Auto-restart

When you turn ON the PROGRAM SEARCH, the auto-restart automatically turns off. Turn OFF the PROGRAM SEARCH if you want to turn on the auto-restart.