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Manual No.

9301311

[INDUSTRIAL ROBOT]

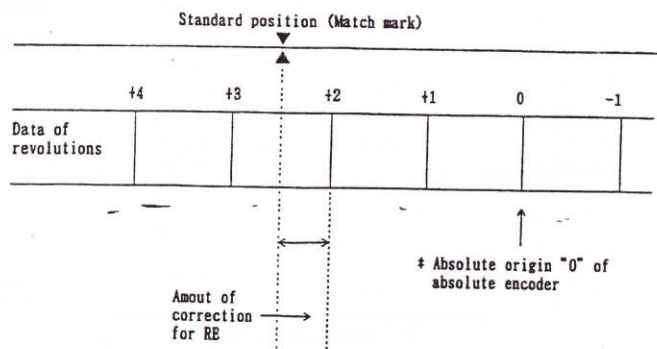
SERVICE MANUAL (1)
ADJUSTMENTS & MEASUREMENTS
Models: AW-006A & AW-010A

(Version No.1 : 1)

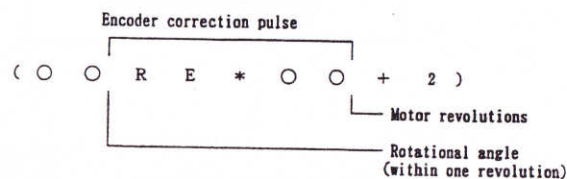
Date No. : Jan. 31, 1993

MATSUSHITA INDUSTRIAL EQUIPMENT CO., LTD.

1-2 Operating principle



* Display of contents of encoder correction pulse



* The following resettings are necessary to set the motor revolution data to zero or when the absolute encoder was left without being connected to a battery. (Under such conditions, the capacitor in the encoder may not be supplied with the specified voltage and the internal elements of the encoder may not operate normally.)

① The case of model AW-006A

RT, UA, FA and RW, TW, BW

<Resetting method>

1. Connect the connector of the motor.
2. Turn on the power switch.
3. Short-circuit the pins 13 and 16 of the PG connector for 5 seconds. *min. 1.5 sec*

(Note)

The pin numbers of the PG connector are entered on the connector proper. Check for the correct pin numbers.

PG connector

1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16

Short circuit

(3) Searching of standard position

The standard position is searched to confirm the displacement of origin mark.

(Operating principle)

The designated axis moves to the position where the standard correction data of the encoder are registered.

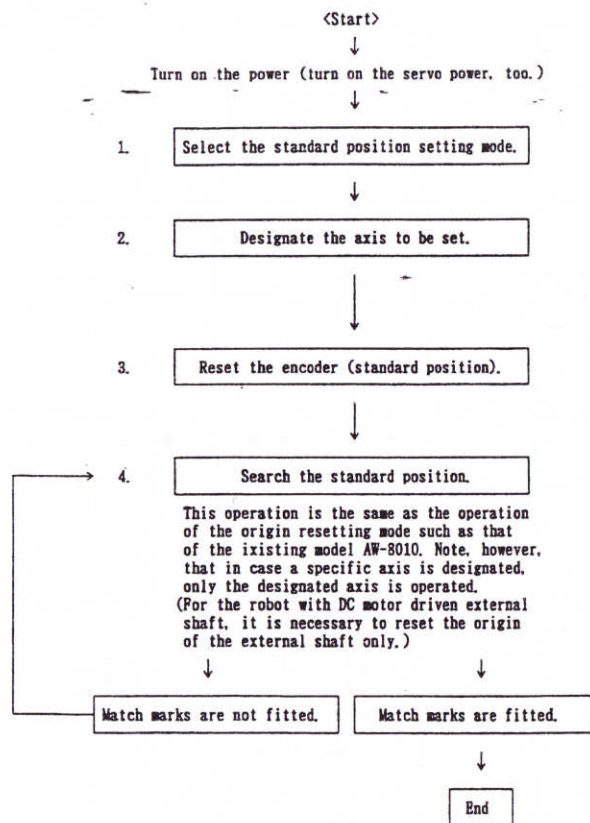
(4) Resetting of encoder

(Standard position)

The encoder is reset to establish the correspondence between the absolute origin data of the encoder and the angle data of the robot.

1-3 Flowchart for setting to standard position

The following chart shows the overall flow for setting to standard position.



② The case of model AW-010A

<Resetting method> for RT axis, UA axis, FA axis, RW axis motors

1. Connect the motor connector.
2. Turn on the power switch and allow to stand for 5 minutes.
3. Turn off the power of the robot.
4. Remove the connector from the motor to leave the motor as a single unit.
5. Short-circuit the pins 8 and 10 of the PG connector on the motor side for 2 seconds or more.

(Note)

The pin numbers of the PG connector are entered on the connector proper. Check for the correct pin numbers.

Short circuit	
1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16
PG connector	

<Resetting method> for BW axis and TW axis motors

1. Connect the motor connector.
2. Turn on the power switch and allow to stand for 5 minutes.
3. Turn off the power of the robot. *10A only*
4. Remove the connector from the motor to leave the motor as a single unit.
5. Short the pins 4 and 8 of the PG connector on the motor side for 2 seconds or more.

(Note)

Wire number of BW axis

151-NC

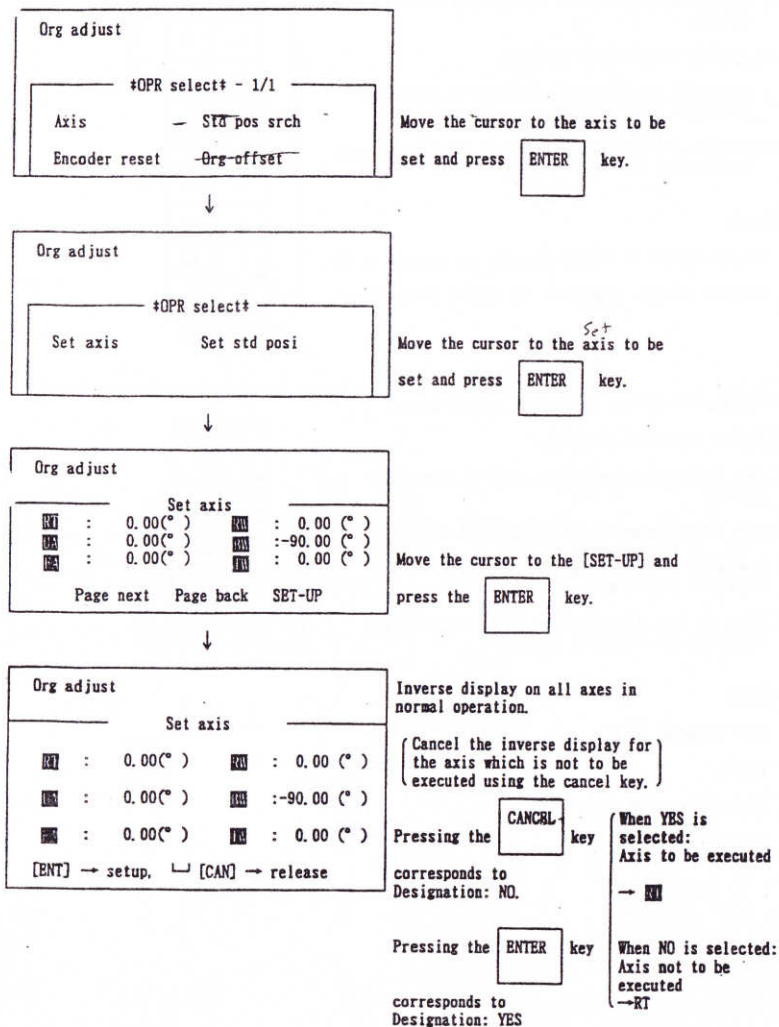
Wire number of TW axis

163-NC

PG connector	
1	5
2	6
3	7
4	8
Short circuit	

(2) Designation of axis to be set (Perform this operation only when necessary.)

Axis whose standard position is to be executed can be designated.
(Normally, axis designation is not necessary because all the axes are adjusted.)



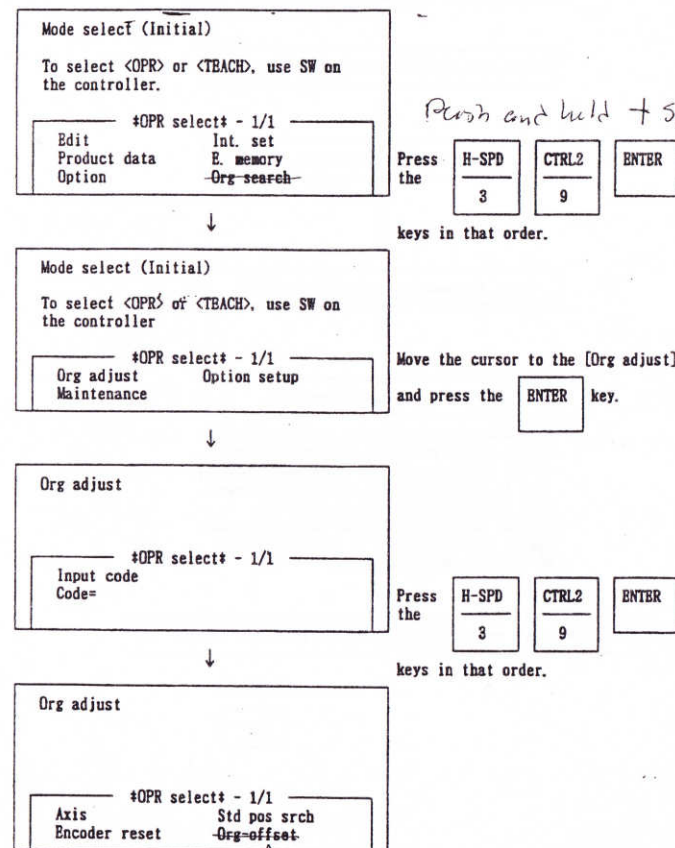
1-4 Explanation of operation

(1) Selection of standard setting mode

Turn on the power and the mode select display screen appears. Then, select the "STANDARD POSITION" on the display screen.

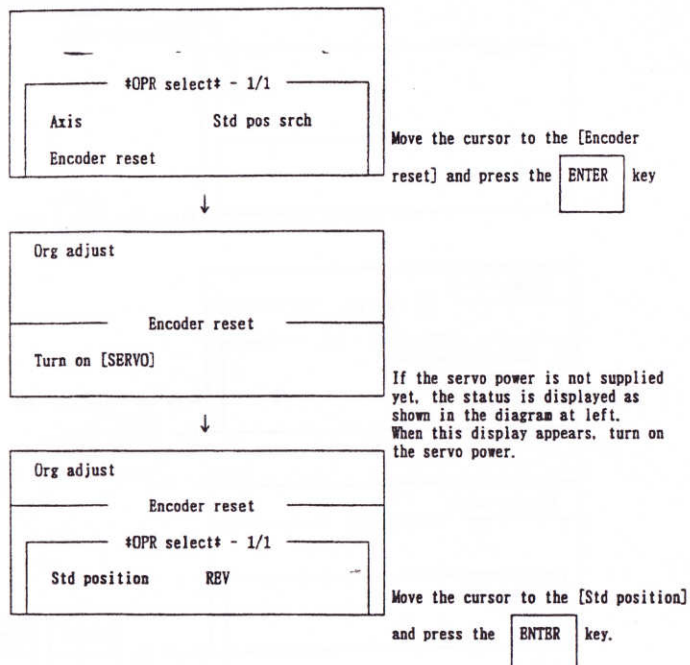
Turn on the power and the breaker turns on.

(Mode select display screen)



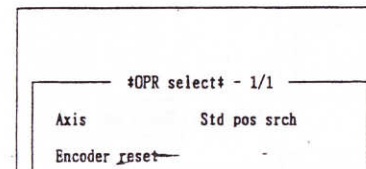
(3) Encoder reset (for standard position)

With this operation, the encoder absolute Origin data are caused to correspond with the angle data of the robot. When an axis is designated, only the axis which is designated can be operated.



When the designation of axis is completed, press the

`END` key ^{two times} ~~three~~ times.



Org adjust	
Encoder reset	
#OPR select# - 1/1	
Std position	REV



Org adjust	
#OPR select# - 1/1	
Axis	Std pos srch
Encoder reset	Org-offset

Press the **END** key.

Encoder reset	
Std position	
Adjust standard position Fit each marks	

Press the **TEACH ENABLE** key
(LED turns on) and fit each marks
by means of teaching pendant.

Press the **TEACH ENABLE** key.
(LED turns off.)



Please finish	
---------------	--

Press the **END** key.



Encoder reset	
Std position	
#OPR select# - 1/1	
Store Std position	
YES	NO

Move the cursor to "YES" and press
the **ENTER** key.



Encoder reset	
Std position	
Input code Code=	

Press the **H-SPD** **CTRL2** **ENTER**
3 9

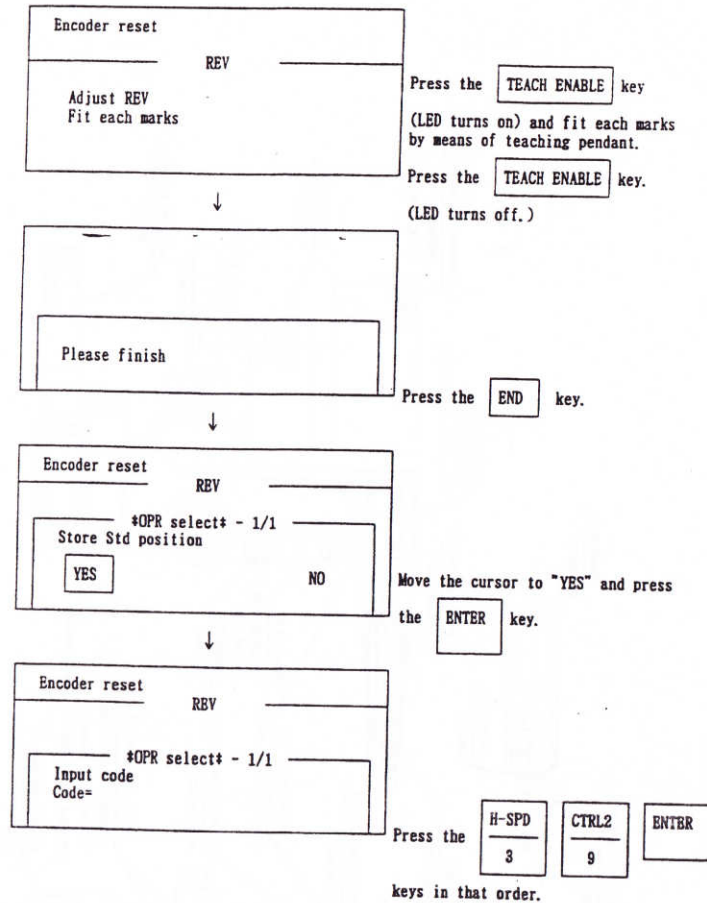
keys in that order.



Nanoplate position ... AW010A

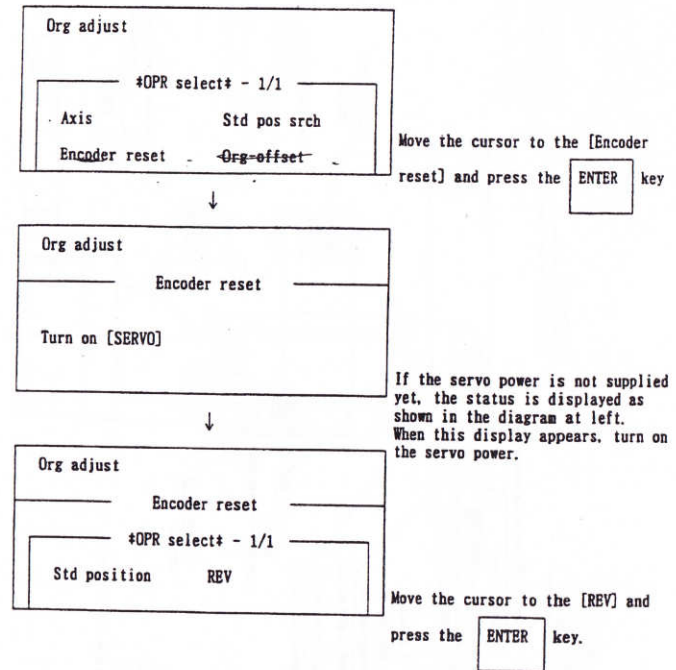


Nameplate position ... AW006A



(4) Encoder reset (for revolutions)

When an axis is designated, the axis which is designated can be operated.



(5) Standard position search

Confirm the displacement of the absolute origin of the encoder reset.

After the encoder reset:

↓

Org adjust	
*OPR select# - 1/1	
Axis	Std pos srch
Encoder reset	Org-offset

↓

Move the cursor to the [Std pos srch] and press the ENTER key.

If the servo power is not supplied yet, turn on the servo power.

Press the [Start] on the panel

Match marks are fitted

End

Origin mark is not fitted.

Reset the encoder again.

Org adjust	
Encoder reset	
*OPR select# - 1/1	
Std position	REV

↓

Press the END key.

Org adjust	
*OPR select# - 1/1	
Axis	Std pos srch
Encoder reset	Org-offset

Prod dat : Origin data	
Std offset - 1/1	
RT:	0000 # 0000
UA:	0000 # 0000
FA:	0000 # 0000
#OPR select# - 1/1	
Change	

Press the key.

#OPR select# - 1/1	
Input code	
Code=	

Press the keys in that order.

Prod dat : Origin data	
Std offset - 1/1	
ET :	0 0 0 0 # 0 0 0 0
UA :	0 0 0 0 # 0 0 0 0
FA :	0 0 0 0 # 0 0 0 0
PW :	0 0 0 0 # 0 0 0 0
BW :	0 0 0 0 # 0 0 0 0
TW :	0 0 0 0 # 0 0 0 0

Move the cursor to a position to be changed, and press the key to input new numerical values.

Press the [END] key to return the display screen to the [Initial].

1-5 Changing of origin correction data by MDI operation

<Procedures>

Turn on the power and the breaker turns on.

Mode select (Initial)	
To select <OPR> or <TEACH>, use SW on the controller	
#OPR select# - 1/1	
Edit	Init. set
Product data	E. memory
Option	Org-search

Move the cursor to the [Product data] and press the key.

Prod dat	
#OPR select# - 1/2	
Accumul. time	Org data
Job exe count	Register

Move the cursor to the [Org data] and press the key.

Prod dat : Origin data	
#OPR select# - 1/1	
Std position	Std offset

Move the cursor to the [Std offset] and press the key.

Prod dat : Origin data	
Std offset - 1/1	
RT :	0 0 0 0 # 0 0 0 0
UA :	0 0 0 0 # 0 0 0 0
FA :	0 0 0 0 # 0 0 0 0
RW :	0 0 0 0 # 0 0 0 0
BW :	0 0 0 0 # 0 0 0 0
TW :	0 0 0 0 # 0 0 0 0

Press the cursor to the key.