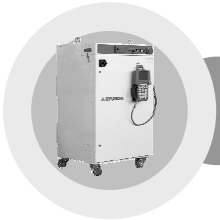
WARNING

THE INSTALLATION SHALL BE MADE BY QUALIFIED INSTALLATION PERSONNEL AND SHOULD CONFORM TO ALL NATIONAL AND LOCAL CODES

Hyundai Robot

Hi4aPM071001FMEN3



Hi4a Controller Function Manual

Prevention Maintenance

HYUNDAI
HEAVY INDUSTRIES CO.,LTD.

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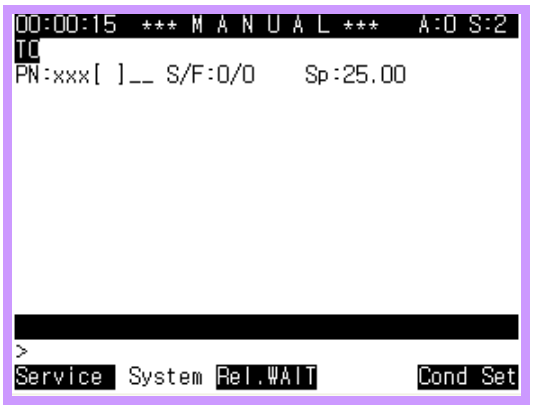
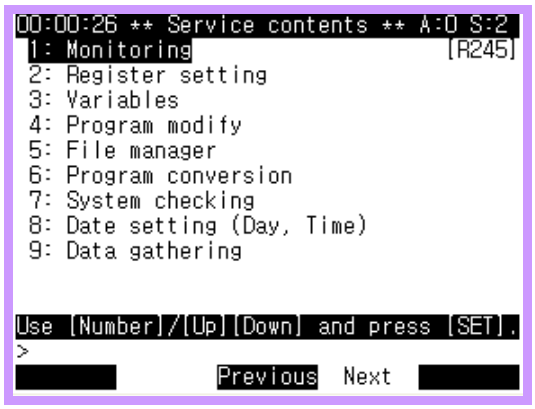
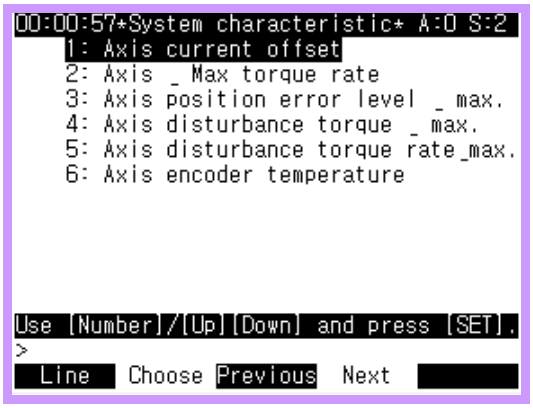
System Characteristic Data Monitoring Function

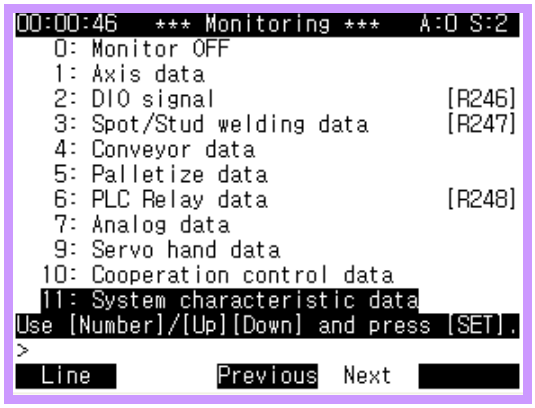
(1) Data monitoring of charateristic data at teaching pendant

(2) Select『[PF1]: Service』 → 『1: Monitoring』 → 『11: System characteristic data』





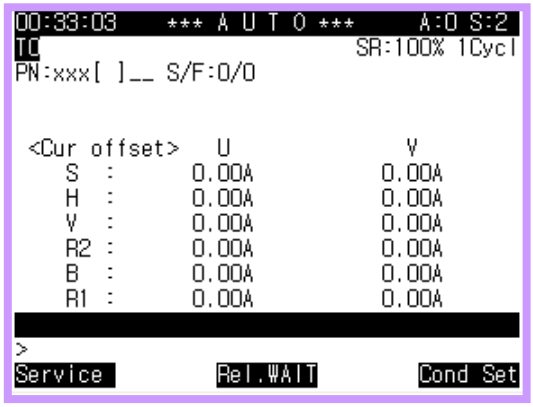




(3) The Maximum Manual Reset : R300
Reset every kinds of maximum in system charateristic data, re-execute the maximum monitor.

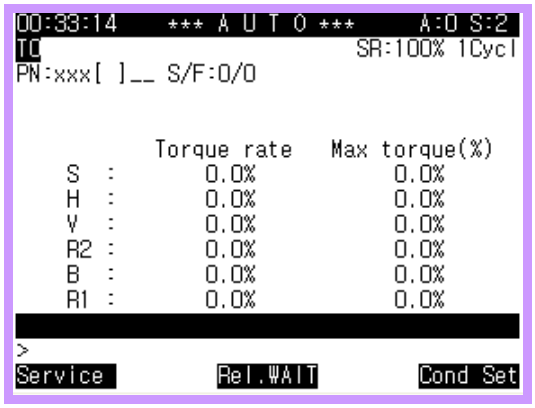
(4) Axis current offset

- It shows that U and V phase current offset as the Amp.
- Offset renewal of phase current only executes when motor is off.



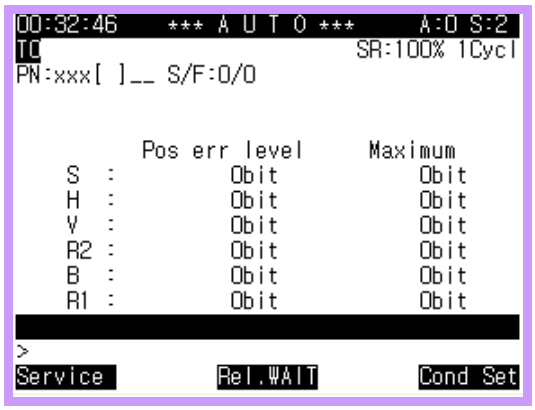
(5) Axis & Max torque rate

- Monitoring as instantaneous load factor [%] prepared to the rating torque to the current torque
- Maximum of occurred torque at each axis after putting power on the controller



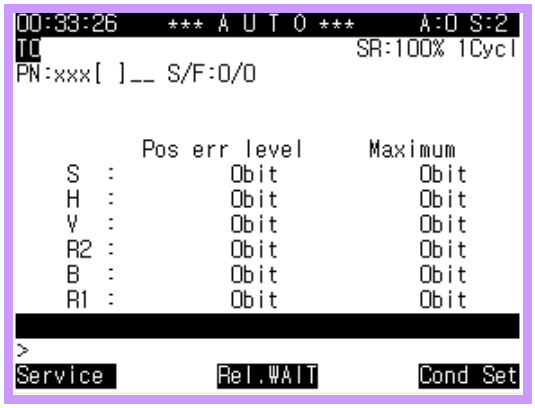
(6) Axis position error level & max.

- Indicate as amount of encoder bit
- Position deviation maximum that has been occurred at each axis after putting the power of controller On



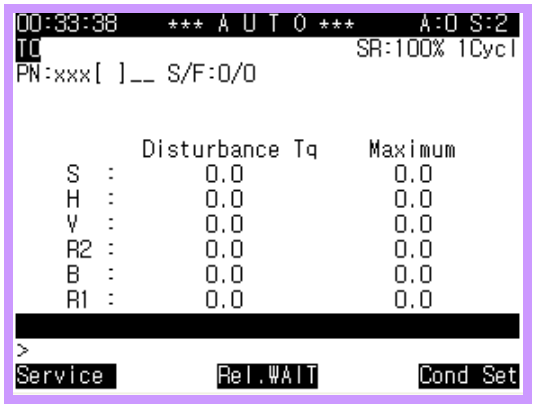
(7) Axis disturbance torque & max.: Only support dynamic model registration types of robot

- Disturbance torque maximum that has been occurred at each axis after controller power is On.
- Disturbance torque maximum is updated only during manual jogging and playing. It is not updated at GUN pressurization operation and etc.



(8) Axis disturbance torque rate&max. : Only support dynamic model registration types of robot

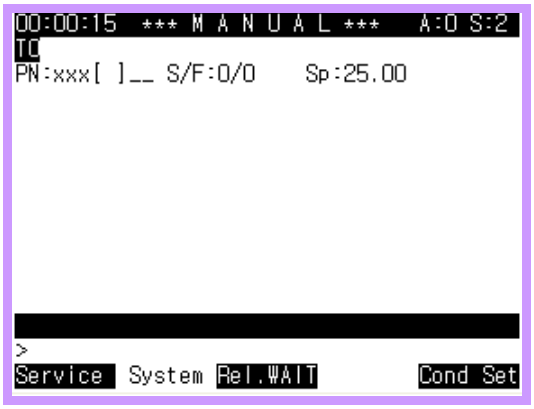
- Maximum of Occurred Disturbance torque change rate after controller power On
- Disturbance torque change rate is updated only during manual jogging and playing. It is not updated at GUN pressurization operation and etc.

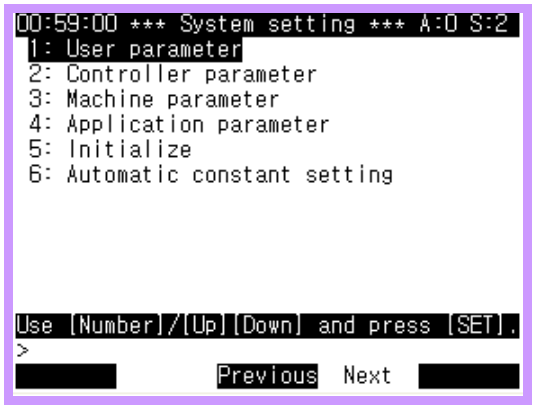


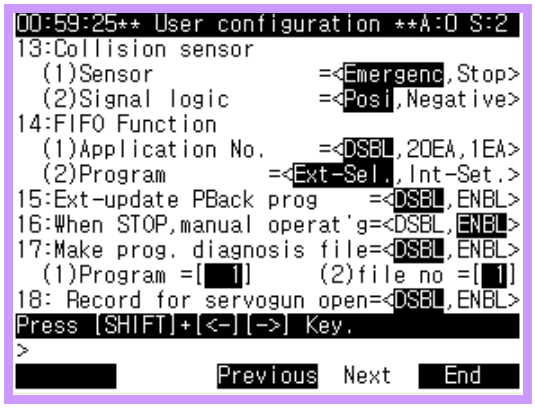
2

Program Diagnosis Function

(1) 『[PF2]: System』 → 『1: User parameter』 → 『17: Make pro. Diagnosis file』







- Program : Robot operational program number of diagnosis subject
- File no : File number to save the diagnosis result (ROBOT.R01~R99)
- Record report file while 1cycle or continuous operation
- Regular renewal while playing the program continuously
- Diagnosis result file is not renewable when occurring the Internal stop or External stop, Motor Off, Emergency and etc.
- Diagnosis function is valid even if Program CALL occurs.
- Diagnosis file is not renewable when occurring Program JUMP.
- User can periodically manage the condition of robot as writing out diagnosis result file of the standard operation program.

2.1. Contents of program diagnosis result file

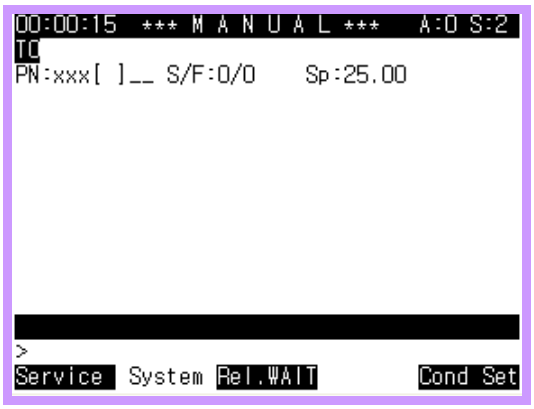
(1) Program basic data
Robot type, total axis, program number, total step, playing speed rate, run time, write out date

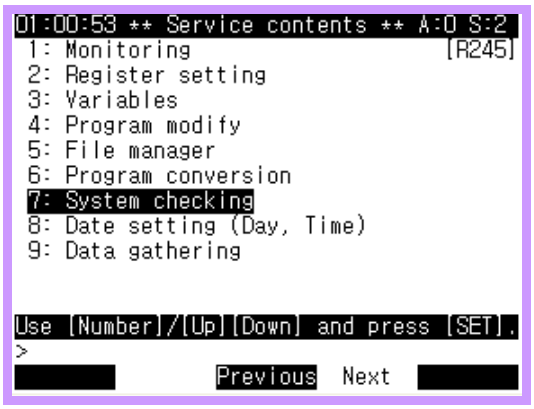
(2) Diagnosis data
Current Offset, average/max torque, Rated torque over time, average/max position difference.

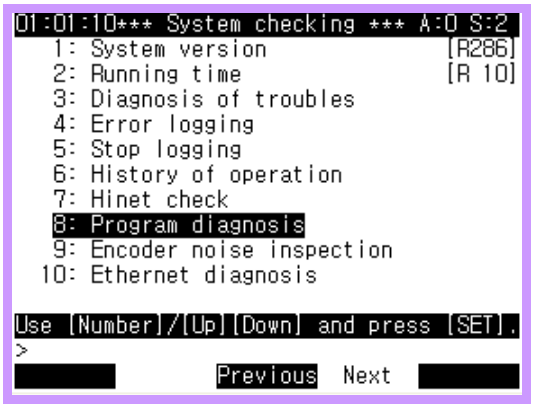
2.2. Program diagnosis result checking

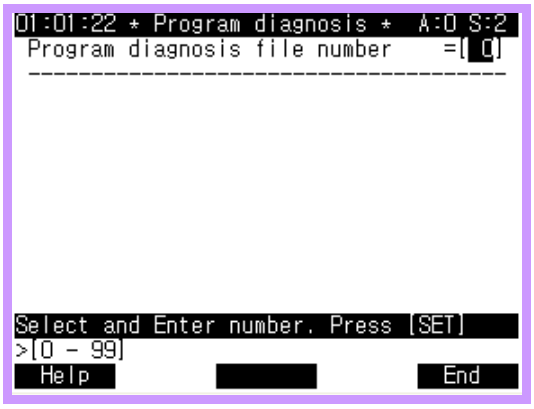
The program diagnosis result will be saved as a file. The final result can be saved to the computer and can be checked at the computer through the HRView. Also it can be checked at teaching pendant directly.

(1) 『[PF1]: Service』 → 『7: System checking』 → 『8: Program diagnosis』







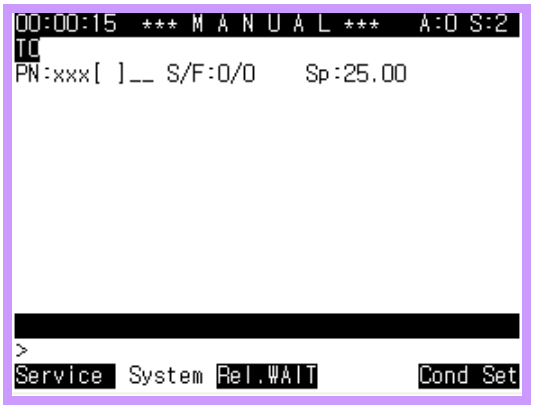


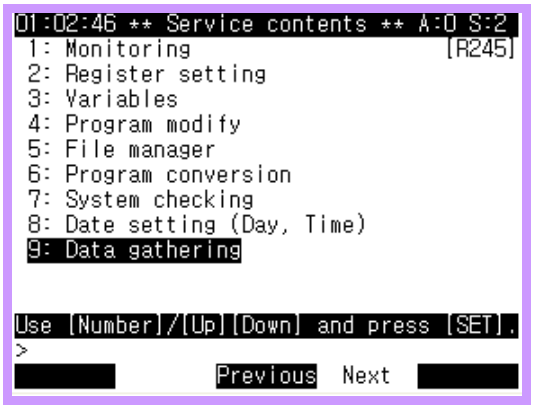
3

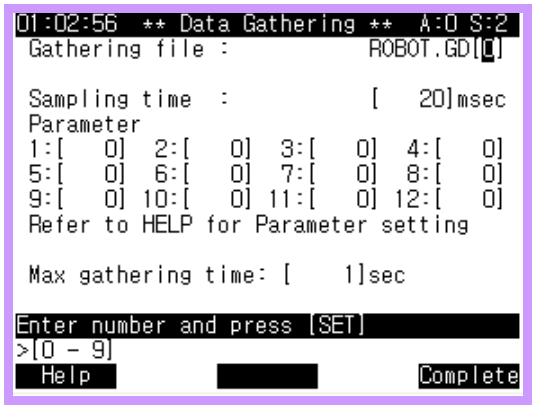
Data Gathering Function

(1) Data gathering result file : ROBOT.GD0~GD9
It can be managed by backing up through HRView.

(2) User menu
『[PF1]: Service』 → 『9: Data gathering』 function







- Gathering file : ROBOT.GD0~9
- Sampling time : minimum 10msec
- Parameter
  Gathering possible until 12 parameters at the same time
  Parameter type input is possible refer to the help manual by pressing PF1[Help] key.
- Max gathering time
  Automatic calculation according to the sampling time and parameter number

(3) Data gathering instruction

- GATHER var
  var = 1 : Data gathering start
  var = 0 : Data gathering end, Automatic end when becoming maximum gathering time
- Data gathering is operated in program 1cycle or continuously playback mode.
  It is not operated in step go/back or 1step playback mode.

- Collecting data with the occurrence of internal stop or External stop, Motor Off, Emergency and etc.
  After data gathering is started, it is gathered until the end instruction or designated time.

- Data gathering file is always renewed.

(4) Setup method to collect the data

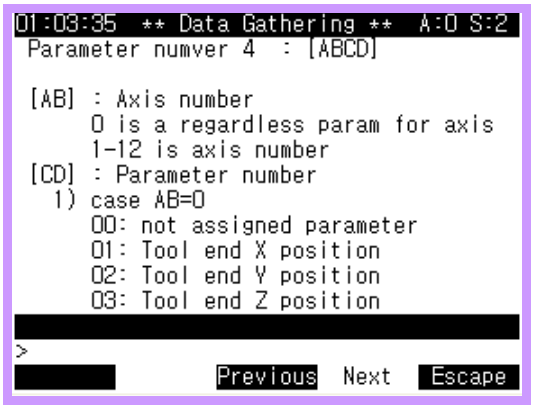
- 4 digit parameter number : [ABCD]

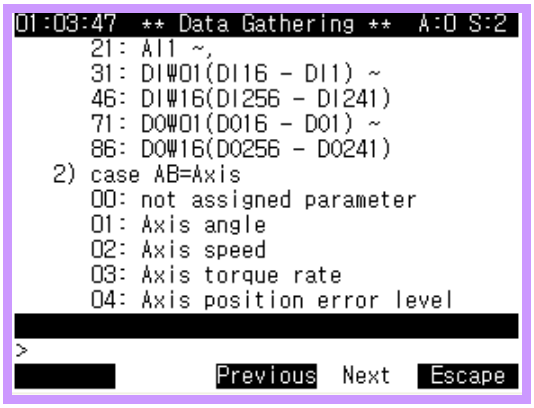
- [AB] : Axis number
  0 is the parameter that is not relevant with axis.
  1-12 is relevant axis number.

- [CD] : Parameter number
  ① In the case of AB=0
  00: No parameter designation
  01: Tool end position X
  02: Toole end position Y
  03: Tool end position Z
  31~46: Public input signal DIW01(DI16:DI1) ~ DIW16(DI256:DI241)
  71~86: Public output signal DOW01(DO16:DO1)~DOW16(DO256:DO241)

  ② AB=the case of each axis
  00: No parameter designation
  01: Angle of each axis
  02: Speed of each axis
  03: Load ratio of each axis
  04: Position deviation of each axis

- Help to set up the parameter will be indicated when pressing 『[PF1]: Help』 key.



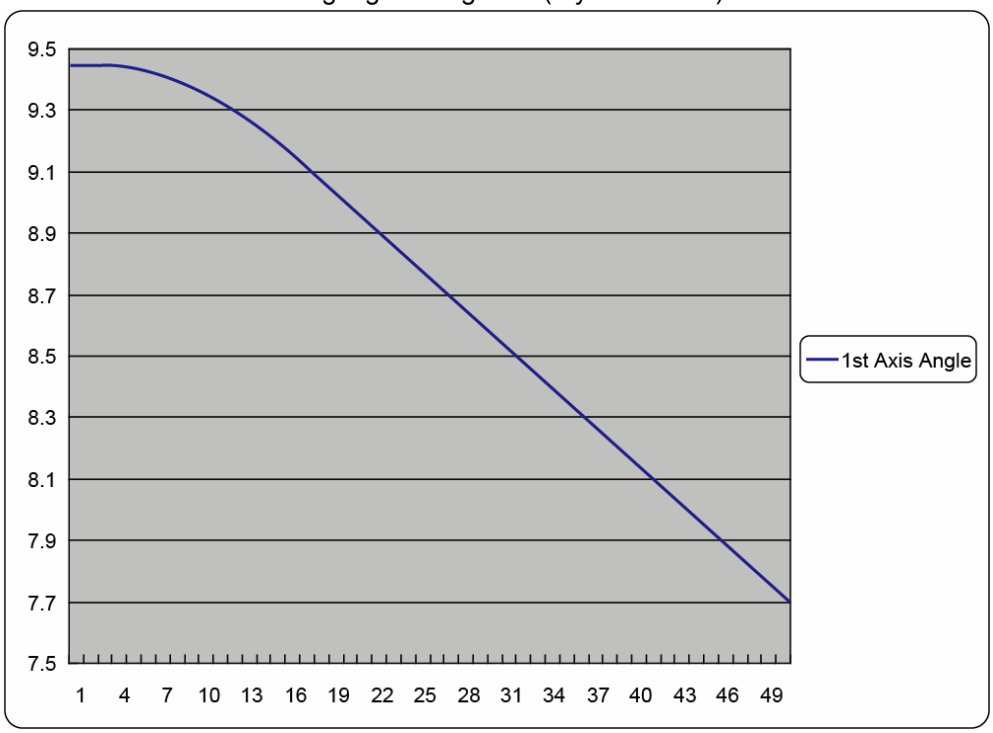


(5) Contents of gathering result file

■ Parameter number
1 2 3 31 46 71 86 101 102 103 104 201

■ data
1 -284.063 1800.016 2276.735 0101010101010101 0000000000000000
0000000000000000 0000000000000000 9.446 -5.132 0 0 84.380
2 -284.063 1800.016 2276.735 0101010101010101 0000000000000000
0000000000000000 0000000000000000 9.446 -5.235 0 0 84.380
3 -283.996 1800.019 2276.680 0101010101010101 0000000000000000
0000000000000000 0000000000000000 9.444 -5.338 0 0 84.382
:
:

■ Indication of 1 axis angle gathering data (by MS Excel)



◆ Other ◆

(1) MAIN CPU VERSION
■ After V10.07-15

(2) SERVO DSP VERSION
■ After V4.17

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