MOTOMAN-HC10, HC10DT
SUPPLEMENTAL INSTRUCTIONS

**TYPE:**
YR-1-06VXHC10-A01 (HC10, SERVO HAND SPECIFICATION)
YR-1-06VXHC10-A11 (HC10DT, SERVO HAND SPECIFICATION)

Upon receipt of the product and prior to initial operation, read these instructions thoroughly, and retain for future reference.

YASKAWA Customer Support

- 24-hour Telephone Number: (937) 947-3200
- Use for urgent or emergency needs for technical support, service, and/or replacement parts
- Routine Technical Inquiries: techsupport@motoman.com
- Allow up to 36 hours for response

Yaskawa Customer Support

The YR-1000 operator’s manual above corresponds to specific usage. Be sure to use the appropriate manual.
The YR-1000 and YR-1000micro alarm codes above consist of “MAJOR ALARMS” and “MINOR ALARMS”.

Please have the following information available when contacting Yaskawa Customer Support:
- System
- Primary Application
- Software Version (Located on Programming Pendant by selecting: (Main Menu) - (System Info) - (Version))
- Robot Serial Number (Located on robot data plate)
- Robot Sales Order Number (Located on controller data plate)

Part Number: 185662-1CD
Revision: 0

MANUAL NO.
HW1485485
1/15
**Introduction**

This supplementary instruction manual describes how YR-1-06VXHC10-A01 (hereinafter referred to as HC10-A01) is different from YR-1-06VXHC10-A00 (hereinafter referred to as HC10-A00) and how YR-1-06VXHC10-A11 (hereinafter referred to as HC10-A11) is different from YR-1-06VXHC10-A10 (hereinafter referred to as HC10-A10).

For the HC10-A01, read this supplementary instruction manual thoroughly together with “MOTOMAN-HC10 INSTRUCTIONS” (Manual No.: HW1483896).

For the HC10-A11, read this supplementary instruction manual thoroughly together with “MOTOMAN-HC10DT INSTRUCTIONS” (Manual No.: HW1485083).

**Points of Difference**

The HC10-A01 and HC10-A11 are different from the HC10-A00 and HC10-A10 in the following points:

- Servo hand specifications (added the power cables and encoder cables of the external axis)
  - (changed the number of wires in the internal user I/O wiring harness)

The differences are described based on “MOTOMAN-HC10 INSTRUCTIONS” (Manual No.: HW1483896) and “MOTOMAN-HC10DT INSTRUCTIONS” (Manual No.: HW1485083). Read this manual thoroughly replacing the subject matters for changes with this supplementary instruction manual.
4.2 Cable Connection

Fig 4-4: Manipulator Cable Connection (Manipulator Side)
7 System Application
7.1 Internal User I/O Wiring Harness and Air Lines

7.1 Internal User I/O Wiring Harness and Air Lines

Internal user I/O wiring harness (8 wires: 0.2 mm²), the cable of external 1 axis (11 cables: 0.3 mm² × 3 cables, 0.2 mm² × 8 cables), and two air lines are incorporated into the manipulator for driving peripheral devices mounted on the upper arm as shown in fig. 7-1 “Connectors for Internal User I/O Wiring Harness and Air Line (Standard specifications)” and fig. 7-3 “Connectors for Internal User I/O Wiring Harness and Air Line (When From the Bottom of the Manipulator Base)”. The connector pins are assigned as shown in fig. 7-2 “Details of the Connector Pin Numbers (Standard Specifications)” and fig. 7-4 “Details of the Connector Pin Numbers (When From the Bottom of the Manipulator Base)”. Wiring must be performed by users.

The operating conditions are shown in the following table.

<table>
<thead>
<tr>
<th></th>
<th>2.0 A or less for each wire (connector for the power of the external axis)</th>
<th>2.5 A or less for each wire (connector for the encoder of the external axis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The allowable current</td>
<td>12.0 A or less (connector for the power of the external axis)</td>
<td>40 A or less (connector for the internal user I/O wiring harness)</td>
</tr>
<tr>
<td>for cables</td>
<td>12.0 A or less (connector for the encoder of the external axis)</td>
<td></td>
</tr>
<tr>
<td>The total current value</td>
<td>12.0 A or less (connector for the power of the external axis)</td>
<td>40 A or less (connector for the internal user I/O wiring harness)</td>
</tr>
<tr>
<td>for connectors</td>
<td>490 kPa (5 kgf/cm²) or less. (The inside diameter: 2.5 mm)</td>
<td></td>
</tr>
<tr>
<td>The maximum pressure</td>
<td>0°C - +40°C</td>
<td></td>
</tr>
<tr>
<td>for the air line</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7 System Application

7.1 Internal User I/O Wiring Harness and Air Lines

Fig. 7-1: Connectors for Internal User I/O Wiring Harness and Air Line
(Standard specifications)

- Connector for internal user I/O wiring harness: RM21WTR-20P *HIROSE*
  Prepare the connector:
  RM21WTP-20S (81) *HIROSE*

- Connector for the encoder of the external axis: LF07WBR-6P *HIROSE*
  Prepare the connector:
  LF07WBP-6S (31) *HIROSE*

- Connector for the power supply of the external axis:
  Connector for internal user I/O wiring harness:
  Connector for the encoder of the external axis:
  Connector for the power cable of the external axis:

- Details of A
  - Air inlet 1: tapped hole M5 (pitch: 0.8) with pipe plug
  - Position of the main key

- Details of B
  - Air inlet 2: tapped hole M5 (pitch: 0.8) with pipe plug
  - Connector for internal user I/O wiring harness:
  - Connector for the encoder of the external axis:

- Connector for internal user I/O wiring harness:
  Connector for the power cable of the external axis:
  Connector for the encoder of the external axis:
7 System Application
7.1 Internal User I/O Wiring Harness and Air Lines

Fig. 7-2: Details of the Connector Pin Numbers (Standard Specifications)
7 System Application
7.1 Internal User I/O Wiring Harness and Air Lines

Fig. 7-3: Connectors for Internal User I/O Wiring Harness and Air Line (When From the Bottom of the Manipulator Base)

- Connector for internal user I/O wiring harness: 51216-0800 *MOLEX*
- Connector for the power cable of the external axis: 51216-0600 *MOLEX*
- Connector for the encoder of the external axis: 51216-0700 *MOLEX*

Details of A
- Connector for internal user I/O wiring harness: 51227-0800 *MOLEX*
- Connector for the power cable of the external axis: 51227-0600 *MOLEX*
- Connector for the encoder of the external axis: 51227-0700 *MOLEX*

Details of B
- Connector for internal user I/O wiring harness: RM21WTR-20P *HIROSE*
- Prepare the connector: RM21WTR-20S (81) *HIROSE*
- Connector for the encoder of the external axis: LF07WBR-6P *HIROSE*
- Prepare the connector: LF07WBP-6S (31) *HIROSE*

Air inlet 1
- Tapped hole M5 (pitch: 0.8) with pipe plug

Air inlet 2
- Tapped hole M5 (pitch: 0.8) with pipe plug
Fig. 7-4: Details of the Connector Pin Numbers (When From the Bottom of the Manipulator Base)

- **Pins used (0.2 mm²):**
  1. 1
  2. 2
  3. 3
  4. 4
  5. 5
  6. 6
  7. 7
  8. 8

- **Pins used (0.3 mm²):**
  1. 1
  2. 2
  3. 3
  4. 4
  5. 5
  6. 6

- **Pins used (Open):**
  1. 1
  2. 2
  3. 3
  4. 4
  5. 5
  6. 6

- **Colors:**
  - EX-PW: red, black
  - EX-PG: white, blue, green, orange, gray, brown

- **Shielded cable:**
  - EX-PG: red, (Shielded cable)

- **Systems:**
  - 8 systems: yellow, white, red, blue, green, orange, gray, black
  - 6 systems: red, white, green, yellow, brown
  - 3 systems: black, red, blue (Shielded cable)
8.2 Internal Connections

Fig. 8-2(a) "Internal Connection Diagram (YR-1-06V0XHC10-A01)" ,
fig. 8-2(b) "Internal Connection Diagram (YR-1-06V0XHC10-A01)" ,
fig. 8-3(a) "Internal Connection Diagram (YR-1-06V0XHC10-A11)" ,
and fig. 8-3(b) "Internal Connection Diagram (YR-1-06V0XHC10-A11)" are replacement diagrams.
8 Electrical Equipment Specification

8.2 Internal Connections

Fig. 8-2(a): Internal Connection Diagram (YR-1-06VXHC10-A01)
Fig. 8-2(b): Internal Connection Diagram (YR-1-06VXHC10-A01)
8.2 Internal Connections

Fig. 8-3(a): Internal Connection Diagram (YR-1-06VXHC10-A11)
Fig. 8-3(b): Internal Connection Diagram (YR-1-06VXHC10-A11)
10 Recommended Spare Parts

Use the following tables to replace the relevant locations in "Table 10-1(a): Spare Parts for the YR-1-06VXHC10-A00" and "Table 10-1(b): Spare Parts for the YR-1-06VXHC10-A10".

### Table 10-1(a): Spare Parts for the YR-1-06VXHC10-A01

<table>
<thead>
<tr>
<th>Rank</th>
<th>Parts No.</th>
<th>Name</th>
<th>Type</th>
<th>Manufacturer</th>
<th>Qty</th>
<th>Qty per Unit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>8</td>
<td>Connector base unit</td>
<td>HW1373418-A</td>
<td>YASKAWA Electric Corporation</td>
<td>1</td>
<td>1</td>
<td>Including the internal wiring harness for the basic axis</td>
</tr>
<tr>
<td>B</td>
<td>9</td>
<td>Internal wiring harness for the wrist axis</td>
<td>HW1173637-A</td>
<td>YASKAWA Electric Corporation</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Table 10-1(b): Spare Parts for the YR-1-06VXHC10-A11

<table>
<thead>
<tr>
<th>Rank</th>
<th>Parts No.</th>
<th>Name</th>
<th>Type</th>
<th>Manufacturer</th>
<th>Qty</th>
<th>Qty per Unit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>8</td>
<td>Connector base unit</td>
<td>HW1373418-B</td>
<td>YASKAWA Electric Corporation</td>
<td>1</td>
<td>1</td>
<td>Including the internal wiring harness for the basic axis</td>
</tr>
<tr>
<td>B</td>
<td>9</td>
<td>Internal wiring harness for the wrist axis</td>
<td>HW1173640-A</td>
<td>YASKAWA Electric Corporation</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>