

MOTOMAN-MH5LS/F, -MH5LS II INSTRUCTIONS

**SUPPLEMENTARY FOR YR-MH005LS-A11/YR-MH005LF-A11
YR-MH005LS-A12/YR-MH005LF-A12
YR-MH005LS-J11/YR-MH005LS-J12
(BACK PANEL CONNECTOR IP65 SPECIFICATION)**

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

Part Number: 172181-1CD
Revision: 0

Introduction

This supplementary instruction manual describes how YR-MH005LS-A11 /YR-MH005LF-A11, YR-MH005LS-A12/YR-MH005LF-A12, YR-MH005LS-J11/YR-MH005LS-J12 (hereinafter referred to as MH5LS-A11/MH5LF-A11, MH5LS-A12/MH5LF-A12, MH5LS-J11/MH5LS-J12) is different from the YR-MH005LS-A00/YR-MH005LS II-A00 (hereinafter referred to as MH5LS-A00/MH5LF-A00).

Read this supplementary instruction manual thoroughly together with the following instruction manual:

"MOTOMAN-MH5LS / MH5LF INSTRUCTIONS"
(Type: YR-MH005LS-A00 (DX100) /YR-MH005LF-A00 (FS100)
for standard specification, 161052-1CD)

"MOTOMAN-MH5LS/F / MH5LF II INSTRUCTIONS"
(Type: YR-MH005LS-J00 (DX200) (FS100)
for standard specification, 170780-1CD)

Points of Differences

The MH5LS-A11/MH5LF-A11, MH5LS-A12/MH5LF-A12, MH5LS-J11/ MH5LS-J12 differs from the -MH5LS-A00/MH5LF-A00 in the following points:

- Location of internal user I/O wiring harness and air lines
- Environmental resistance : IP65
(for the main part of the manipulator)
- Environmental resistance : IP67
(for the wrist part of the manipulator)

The differences are described based on "MOTOMAN-MH5LS/MH5LF INSTRUCTIONS" (161052-1CD) or "MOTOMAN-MH5LS/F / MH5LF II INSTRUCTIONS" (170780-1CD). Read the corresponding manual thoroughly replacing the subject matters for changes with this supplementary instruction manual.

3 Installation

3.4 Location (page 3-5)

- Free from dust, soot, oil, or water

Please replace the above sentence with the following one.

- Free from dust or soot; free from substances that may reduce the efficacy of sealant materials such as nitrile rubber oil seal, O-ring, gasket, and liquid gasket used in the manipulator

5 Basic Specifications

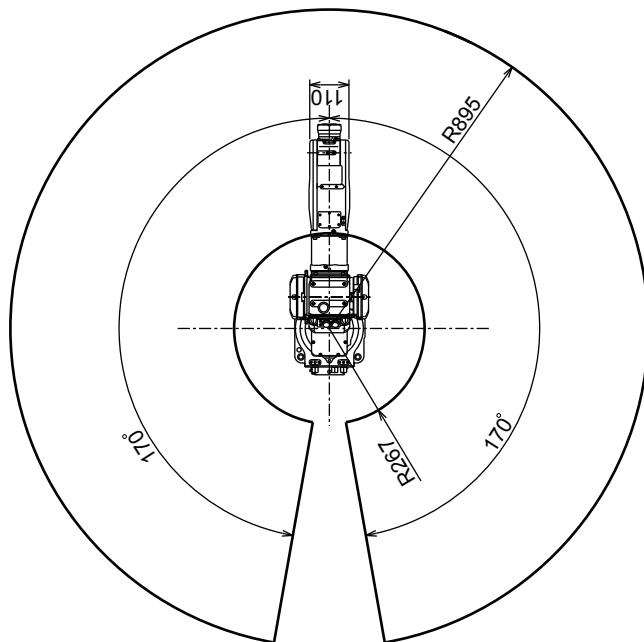
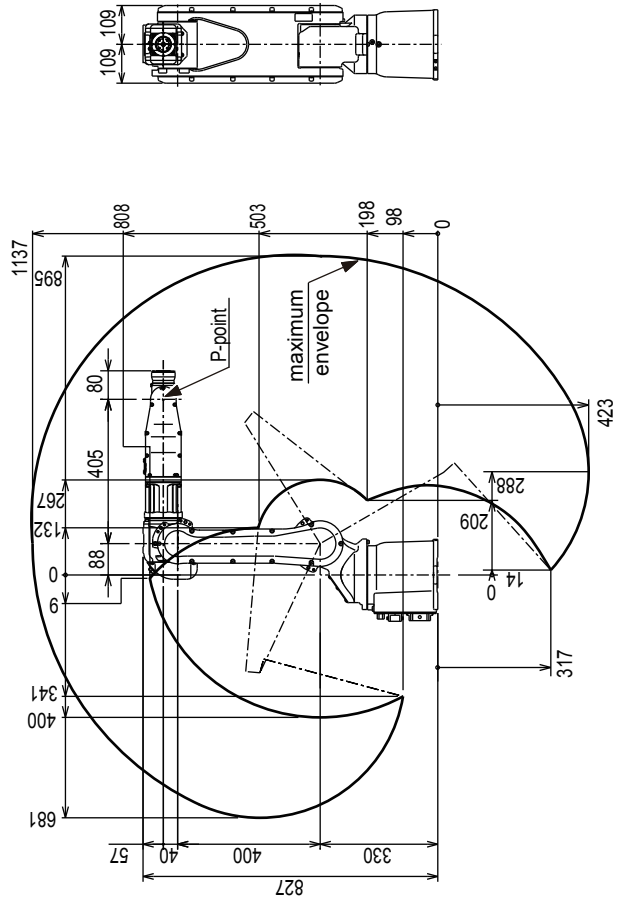
5.1 Basic Specifications (page 5-1)

- Free from dust, soot, or water

Please replace the above sentence in “Table 5-1 Basic Specifications” with the following one.

- Free from dust, soot, and substances that spoil sealing performance of the lips of nitrile rubber oil seals used in the manipulator

5.4 Dimensions and P-Point Maximum Envelope (page 5-3)



7.2 Internal User I/O Wiring Harness and Air Lines (Page 7-2)

Internal user I/O wiring harness (3BC: $0.2\text{ mm}^2 \times 10\text{ wires}$, 4BC: $0.2\text{ mm}^2 \times 8\text{ wires}$) and two air lines are incorporated in the manipulator for the drive of peripheral device mounted on the upper arm as shown in Fig. 7-2 "Connectors for Internal User I/O Wiring Harness and Air Line".

The connector pins 1 to 18 are assigned as shown in Fig.7-3 "Details of the Connector Pin Numbers". Wiring must be performed by users, following the conditions below:

The allowable current for internal user I/O wiring harness	2.5A or less for each wire (The total current value for pins 1 to 18 must be 40A or less.)
The maximum pressure for the air line	490 kPa (5 kgf/cm ²) or less (The air line inside diameter: 4.0 mm)

Fig. 7-2: Connectors for Internal User I/O Wiring Harness and Air Line

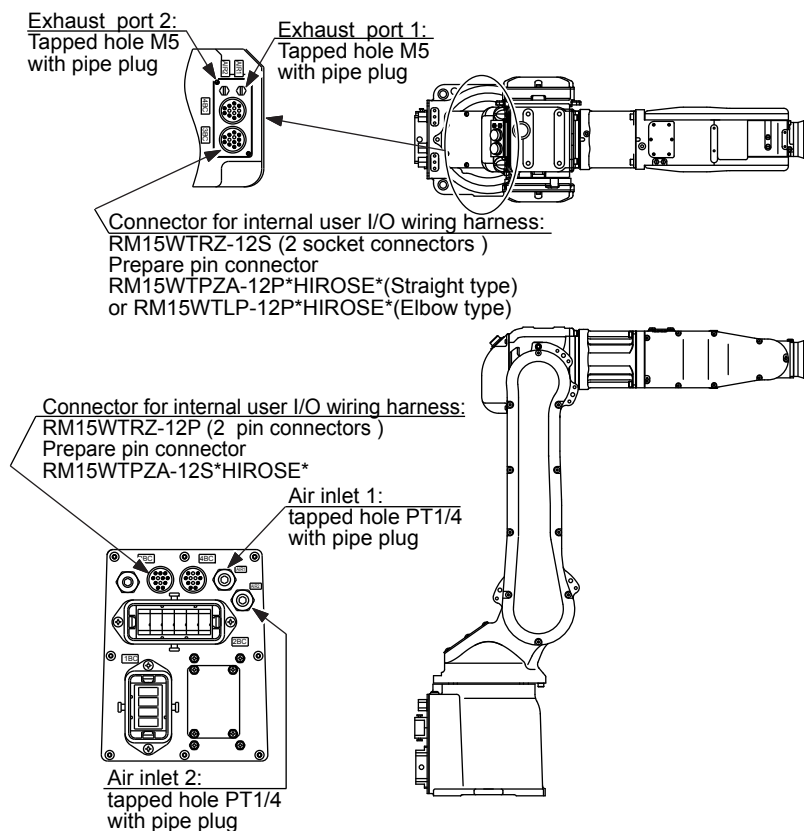
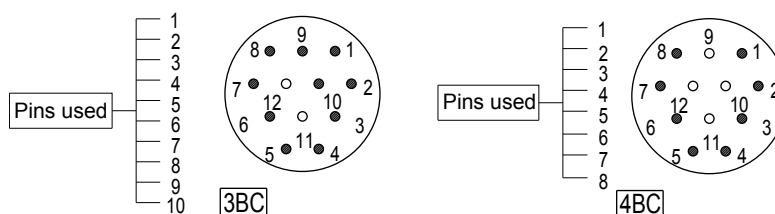
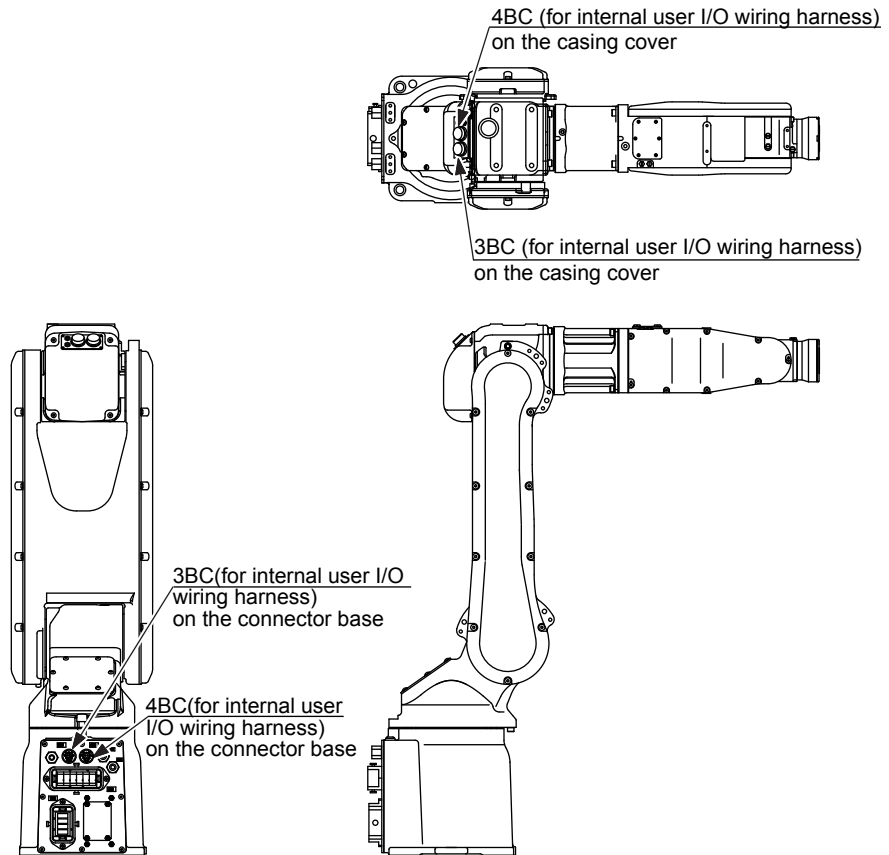


Fig. 7-3: Details of the Connector Pin Numbers



The same pin-number connectors (1 to 10, 1 to 8) of the two connectors at both connector base part and arm part are connected with a single lead wire of 0.2mm^2 .

8.1 Internal Connections (Page 8-1)*Fig. 8-1: Locations and Numbers of Connectors**Table 8-1: List of Connector Types*

Name	Type of Connector
Connector for Internal User I/O Wiring Harness on the connector base	RM15WTRZ-12P (RM15WTPZA-12S*HIROSE*: Optional)
Connector for Internal User I/O Wiring Harness on the U-arm	RM15WTRZ-12S (RM15WTPZA-12P*HIROSE* (Straight type): Optional or RM15WTLP-12P*HIROSE* (Elbow type): Optional)

Fig. 8-2(a): Internal Connection Diagram for DX100/DX200/FS10

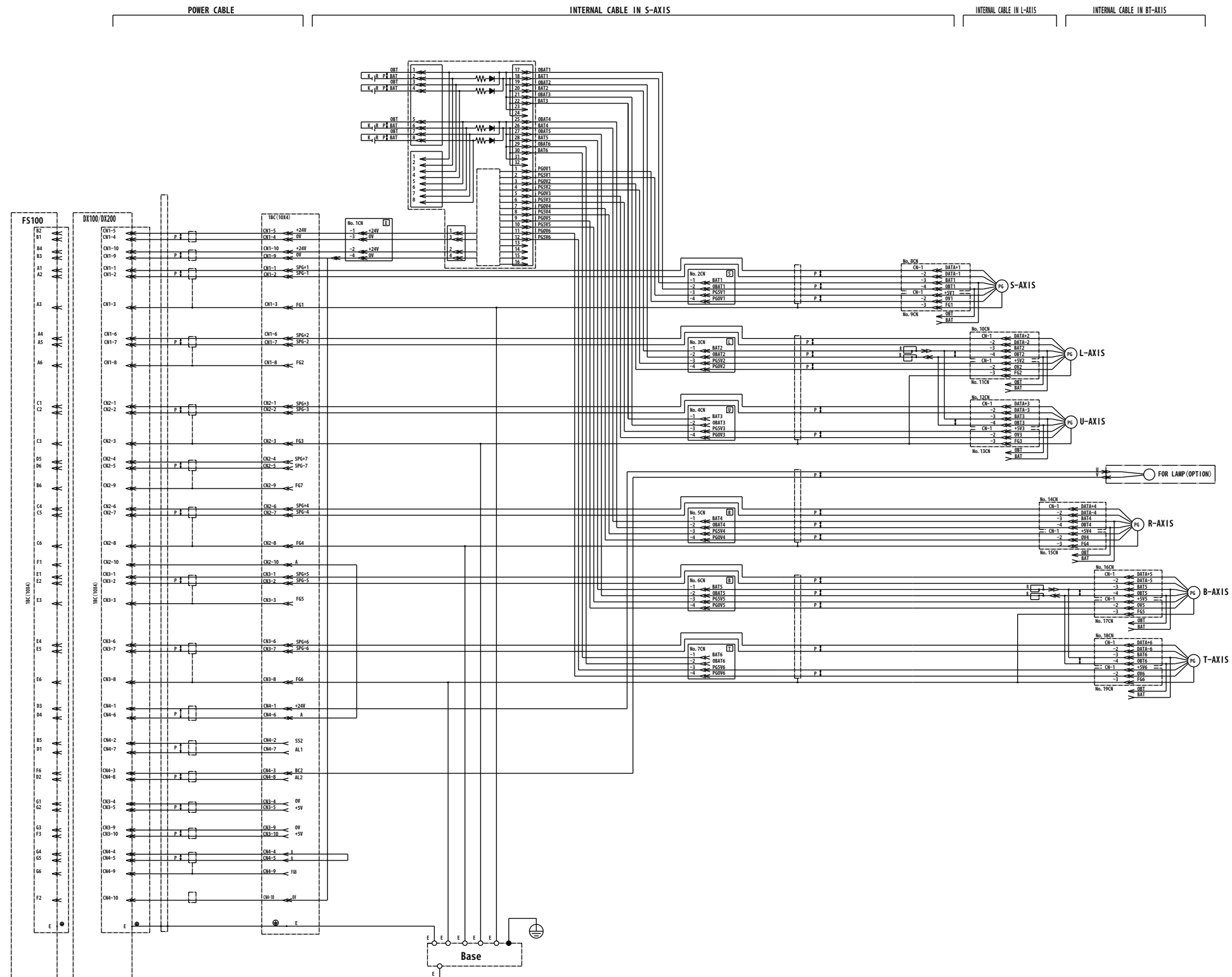
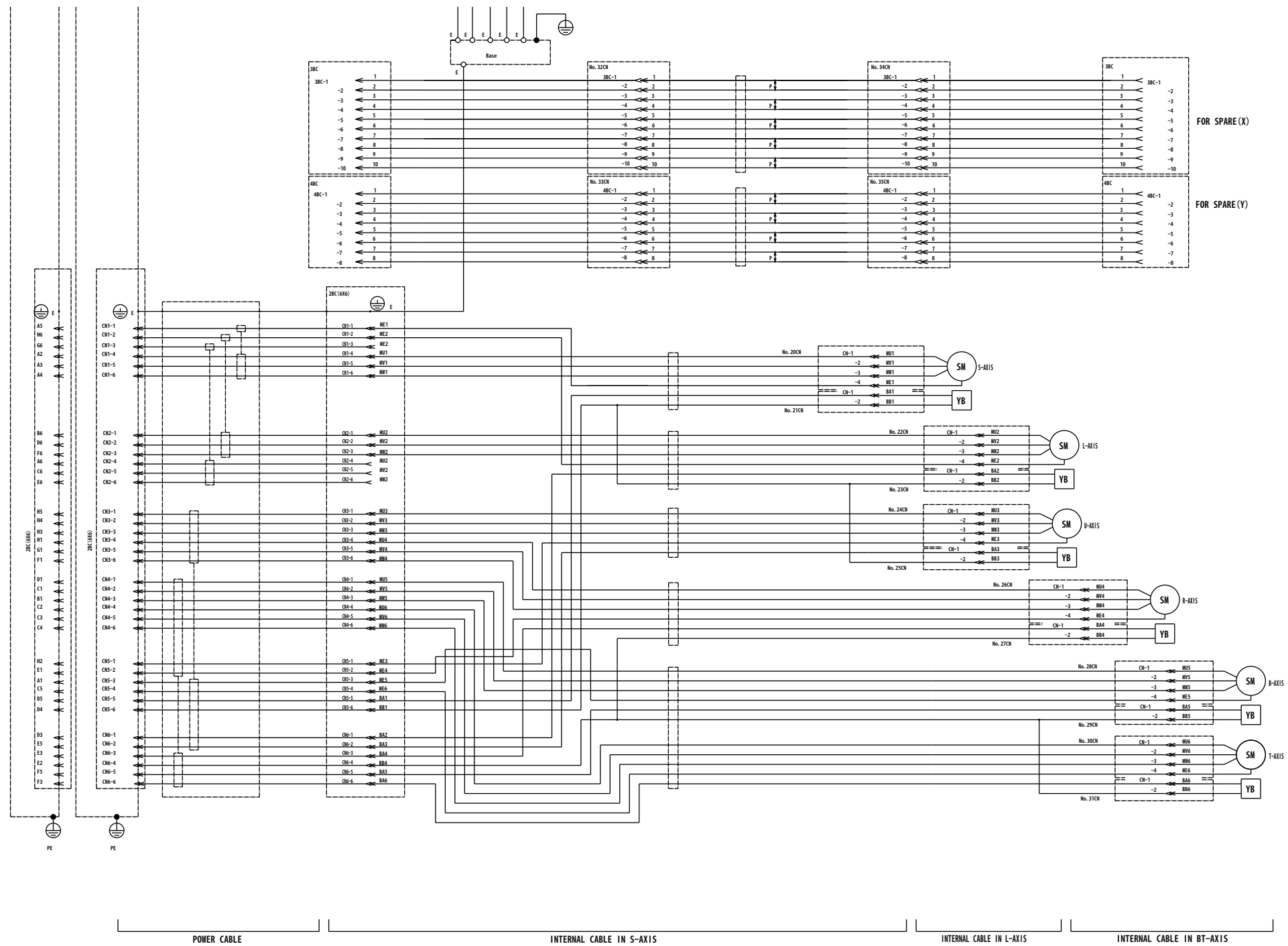


Fig. 8-2(b): Internal Connection Diagram for DX100/DX200/FS100



9 Maintenance and Inspection

9.1 Inspection Schedule (page 9-2)

Please add the following item to the *Table 9-1 "Inspection Items"*.

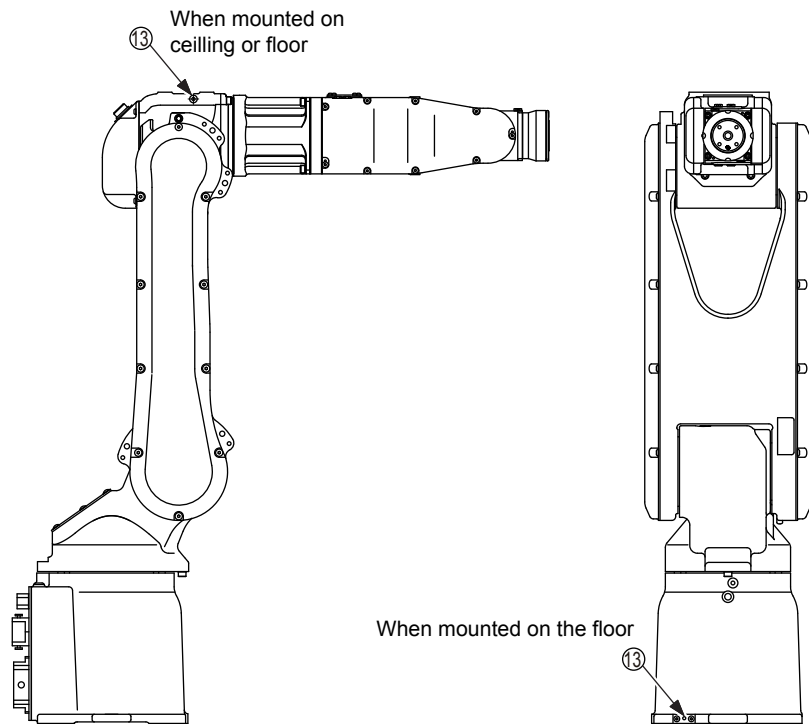
Table 9-1: Inspection Items

Items	Schedule	Method	Operation	Inspection Charge														
				Specified Personnel	Licensee	Service Company												
1 3 Drain plug	<table border="1"> <tr> <td>Daily</td> <td>1000HCycle</td> <td>6000HCycle</td> <td>12000HCycle</td> <td>24000H</td> <td>36000H</td> </tr> <tr> <td>●</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Daily	1000HCycle	6000HCycle	12000HCycle	24000H	36000H	●						Screwdriver, Wrench	Drain condensation water from the robot.	●	●	●
Daily	1000HCycle	6000HCycle	12000HCycle	24000H	36000H													
●																		

The inspection interval depends on the total servo operation time.

Please add the following figure to fig. 9-1 "Inspection Items" (Page 9-4).

Fig. 9-1: Inspection Items (Additional)



9.2 Notes on Maintenance Procedures

(Page 9-6:161052-1CD, Page 9-5:170780-1CD)

9.2.1 Battery Pack Replacement

(Page 9-6:161052-1CD, Page 9-5:170780-1CD)

7. Reinstall the plate with the plate fixing screws.

Please replace the above sentence with the following one.

7. The battery replacing procedures complete after reinstalling the plate on the connector base. Apply Three Bond 1206C to the thread part of the fixing screws.



Do not allow the plate to pinch cables when reinstalling the plate.

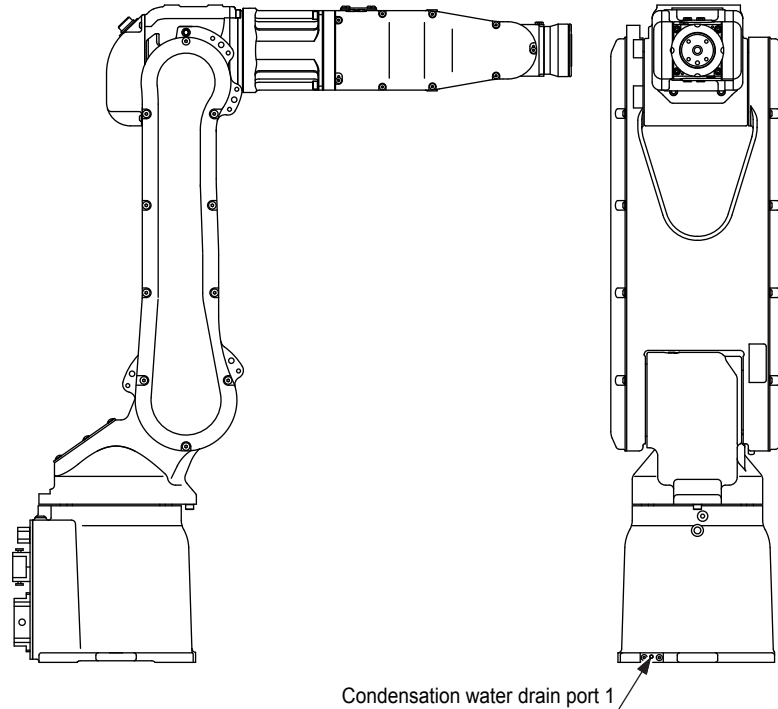
9.2.2 How to Drain Condensation Water from the Drain Plug

Please add this section (9.2.2) after 9.2.1 in section 9.2 “Notes on Maintenance Procedures”

(Page 9-7:161052-1CD, Page 9-6:170780-1CD)

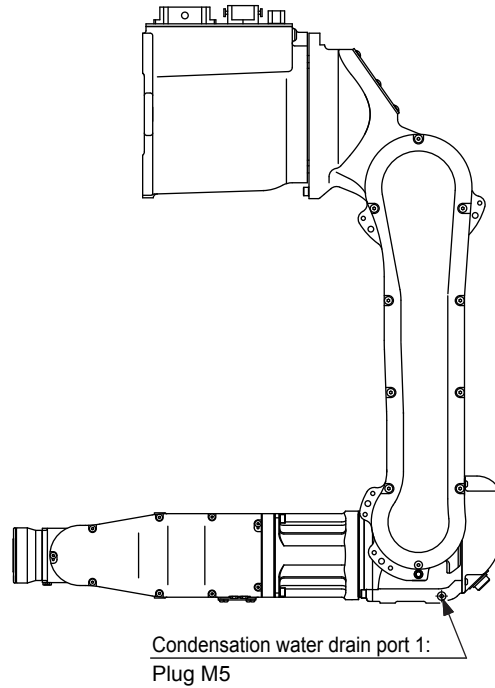
9.2.2.1 When Installing on the Floor

Fig. 9-12: Draining Condensation Water (When Installing on the Floor)



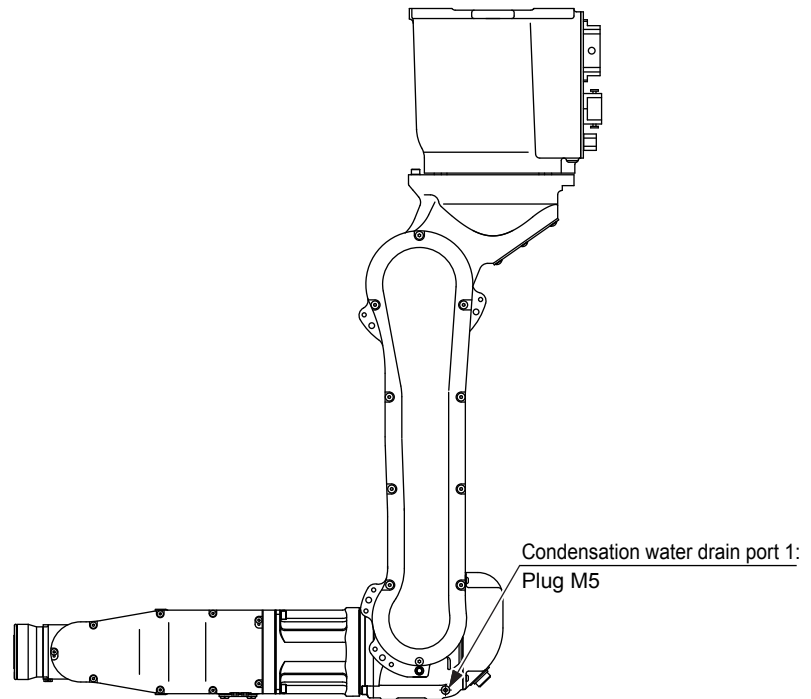
1. Make the U-axis horizontal to the ground as shown in *Fig. 9-12 “Draining Condensation Water (When Installing on the Floor)”*.
2. Remove the plug from the condensation water drain port 1.
3. Drain condensation water.
4. Apply Three Bond 1206C on the thread part of each plug, and reinstall the plugs on the condensation water drain port 1. Tighten the plugs.

9.2.2.2 When Installing on the Wall

Fig. 9-13: Draining Condensation Water (When Installing on the Wall)

1. Make the U-axis horizontal to the ground as shown in *Fig. 9-13 "Draining Condensation Water (When Installing on the Wall)"*.
2. Remove the plug from the condensation water drain port 1.
3. Drain condensation water.
4. Apply Three Bond 1206C on the thread part of the plug, and reinstall the plug on the condensation water drain port 1. Tighten the plug.

9.2.2.3 When Installing on the Ceiling

Fig. 9-14: Draining Condensation Water (When Installing on the Ceiling)

1. Make the U-axis horizontal to the ground as shown in *Fig. 9-14 "Draining Condensation Water (When Installing on the Ceiling)"*.
2. Remove the plug from the condensation water drain port 1.
3. Drain condensation water.
4. Apply Three Bond 1206C on the thread part of the plug, and reinstall the plug on the condensation water drain port 1. Tighten the plug.

10 Recommended Spare Parts (page 10-2)

Replace the following item with the item No.17, No.20 in "Table 10-1 Spare Parts for the YR-MH005LS-A00/YR-MH005LF-A00" or "Table 10-1 Spare Parts for the YR-MH005LS-J00".

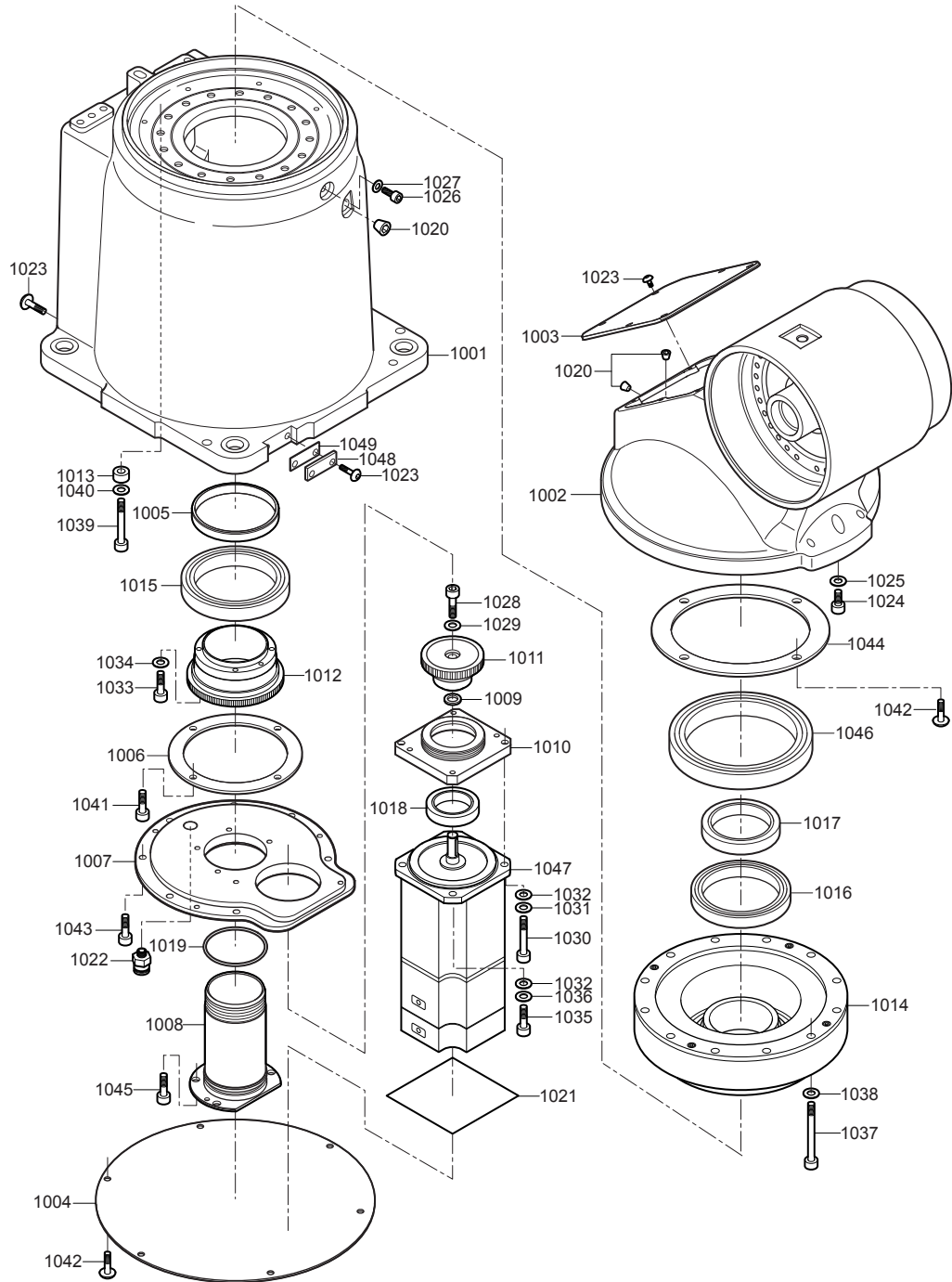
Table 10-1: Spare Parts for the YR-MH005LS-A11/YR-MH005LF-A11, YR-MH005LS-A12/YR-MH005LF-A12, YR-MH005LS-J11/YR-MH005LS-J12

Rank	Parts No.	Name	Type	Manufacturer	Qty	Qty per Unit	Remarks
B	17	Wire Harness in Manipulator	HW0175342-B	Yaskawa	1	1	
C	20	B-and T-Axes Brake	HW1470525-B	Yaskawa	1	2	

11 Parts List (Page 11-1)

11.1 S-Axis Unit

Fig. 11-1: S-Axis Unit



Please replace No.1001, 1002, 1004 and 1023 below with the items in "Table 11-1 S-Axis Unit" (Page 11-2) and newly add No.1042 to 1046.

Table 11-1: S-Axis Unit

No.	DWG No.	Name	Pcs
1001	HW1100159-3	Base	1
1002	HW1100160-3	S head	1
1004	HW0314328-2	Cover	1
1023	M4X10	Button bolt	16
1042	CBSA3-8	Socket screw	10
1044	HW1402690-1	Spacer	1
1046	VR-140A	V-ring	1

MOTOMAN-MH5LS/F, -MH5LS II INSTRUCTIONS

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