

MOTOMAN-MH180 SUPPLEMENTAL INSTRUCTIONS

Simplified Clean-Room Specifications

TYPE:

YR-MS165/MH180-A24

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

Part Number: 182015-1CD
Revision: 1

MANUAL NO.

HW1484937 ◆

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Introduction

This supplementary instruction manual describes how YR-MS165/MH180-A24 (hereinafter referred to as MS165/MH180-A24) is different from YR-MS165/MH180-A00 (hereinafter referred to as MS165/MH180-A00) .

Read this supplementary instruction manual thoroughly together with the following instruction manuals "MOTOMAN-MH180 INSTRUCTIONS" (167428-1CD).

Points of Difference

The MS165/MH180-A24 is different from the MS165/MH180-A00 in the following point:

- Two air lines specifications
- VIGO grease specifications

The differences are described based on "MOTOMAN-MH180 INSTRUCTIONS" (167428-1CD). Read this manual thoroughly replacing the subject matters for changes with this supplementary instruction manual.

3.3 Location

3.3 Location

The MS165/MH180-A24 is different from the MS165/MH180-A00 in the following point:

- Ambient temperature: + 10°C to + 45°C

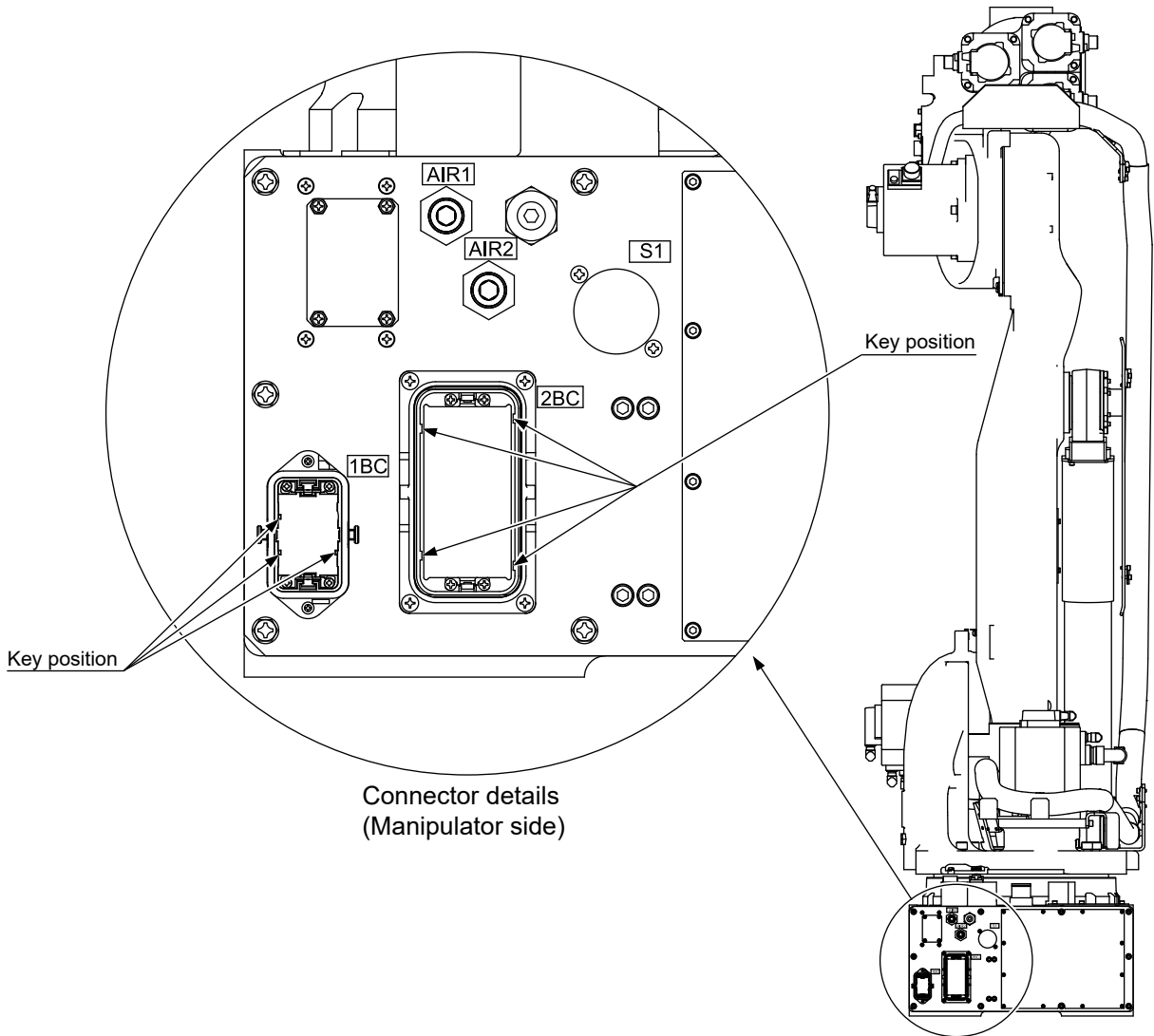


When the operation is started after the manipulator has been out of operation and left in the low temperature (almost 10°C) for a long period, the alarm may occur since the friction torque of the drive unit is large. If the alarm occurs, perform the break-in for few minutes.

4.2.2 Connection to the DX200

(Page 4-4)

Fig. 4-3(a): Manipulator Cable Connectors (Manipulator Side)



5 Basic Specifications

5.1 Basic Specifications

Table 5-1: Basic Specifications¹⁾

Item	Model	MOTOMAN-MH180
Structure		Vertically Articulated
Degree of Freedom		6
Payload		180 kg
Repeatability ²⁾		±0.2 mm
Range of Motion	S-Axis (turning)	-180° - +180°
	L-Axis (lower arm)	-60° - +76°
	U-Axis (upper arm)	-147° - +90°
	R-Axis (wrist roll)	-360° - +360°
	B-Axis (wrist pitch/yaw)	-130° - +130°
	T-Axis (wrist twist)	-360° - +360°
Maximum Speed	S-Axis	2.18 rad/s, 125°/s
	L-Axis	2.01 rad/s, 115°/s
	U-Axis	2.18 rad/s, 125°/s
	R-Axis	3.18 rad/s, 182°/s
	B-Axis	3.05 rad/s, 175°/s
	T-Axis	4.63 rad/s, 265°/s
Allowable Moment ³⁾	R-Axis	1000 N•m (102 kgf•m)
	B-Axis	1000 N•m (102 kgf•m)
	T-Axis	618 N•m (63 kgf•m)
Allowable Inertia (GD ² /4)	R-Axis	90 kg•m ²
	B-Axis	90 kg•m ²
	T-Axis	46.3 kg•m ²
Approx. Mass		970 kg
Protective Structure		Basic axis: IP54 or equivalent Wrist axis only: IP67 or equivalent
Ambient Conditions	Temperature ⁴⁾	10° C to 45° C
	Humidity	20 to 80% RH (non-condensing)
	Vibration Acceleration	4.9 m/s ² or less (0.5 G)
	Others	Free from corrosive gasses or liquids, or explosive gasses Free from exposure to water, oil, or dust Free from excessive electrical noise (plasma)
Power Requirements		5.0 kVA
Noise ⁵⁾		76 dB

1 SI units are used in this table. However, gravitational unit is used in ().

2 Conformed to ISO9283

3 Refer to *chapter 6.1 "Allowable Wrist Load"* for details on the permissible moment of inertia.

4 For VIGO grease being used, under the following conditions, noise and/or oscillation may occur.

(noise may sound like the sound of cracking or grinding as if there is mechanical trouble.)

- Low temperature (approx. 10° C)

- Restart after being out of operation for long period. (after vacation, etc.,)

When noise occurs due to VIGO grease, it can be muted by performing break-in.

5 Conformed to ISO6926

1, Measurement is carried out when the maximum load is mounted to the manipulator and operated in the maximum speed.

2, Measurement is carried out:

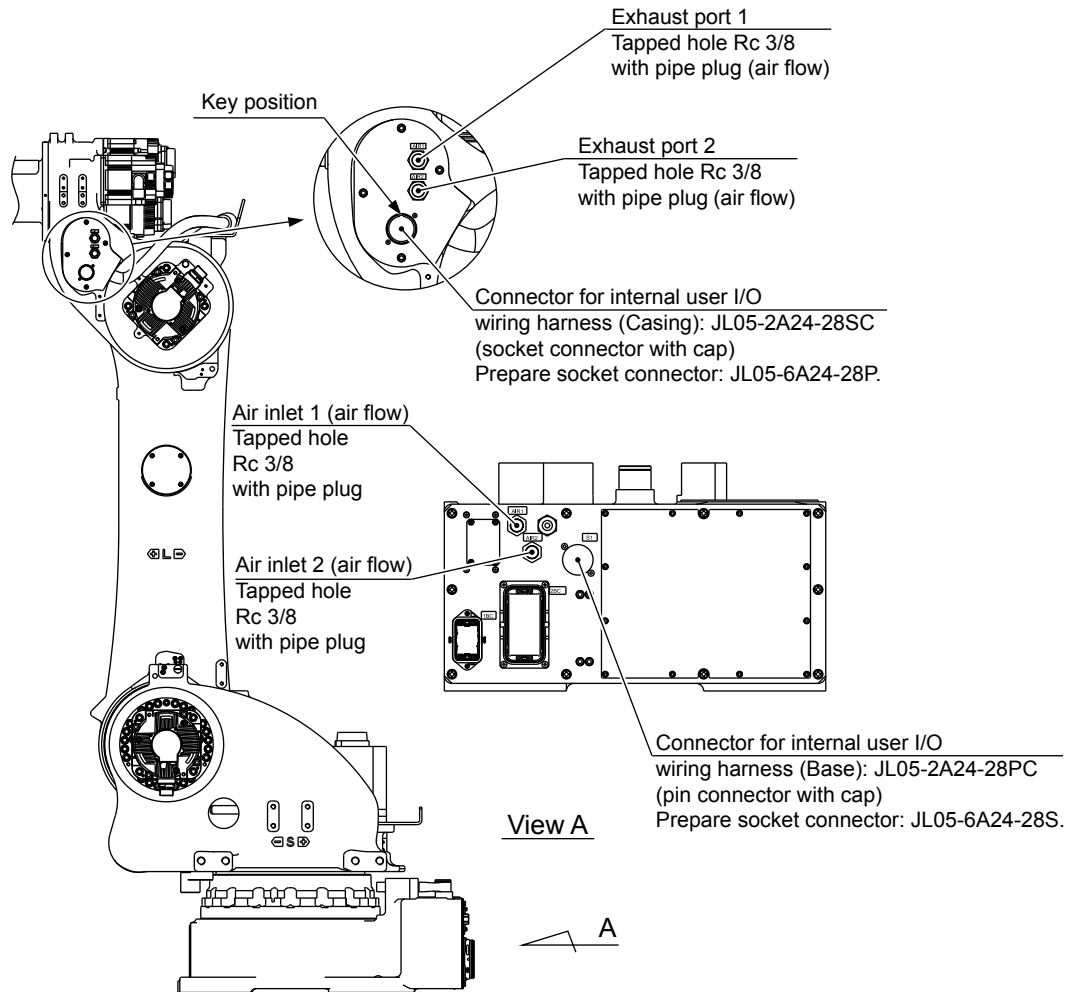
- between 1.2m and 1.5m above the ground.

- 400mm away from the P-point maximum envelope.

7.2 Internal User I/O Wiring Harness and Air Line

(Page 7-2)

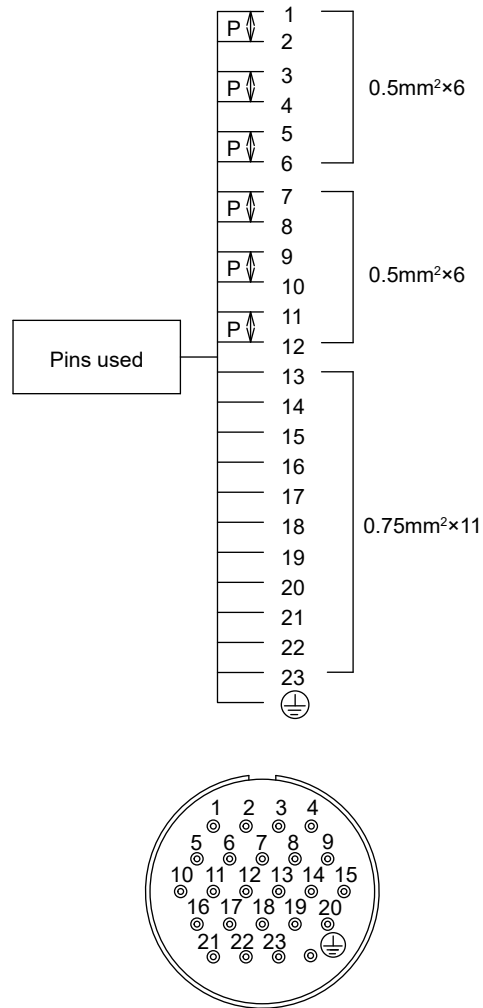
Fig. 7-2: Connectors for Internal User I/O Wiring Harness and Air Line



7.2 Internal User I/O Wiring Harness and Air Line

(Page 7-3)

Fig. 7-3: Detailed Drawing of Connector Pin Numbers



Connector for Internal User I/O Wiring Harness

8.2 Internal Connections

(Page 8-4)

High reliability connectors which can be easily put on and removed are used with each connector part.

For the locations of connectors, see *Fig. 8-4 "Locations of Connectors"*.

Fig. 8-4: Locations of Connectors

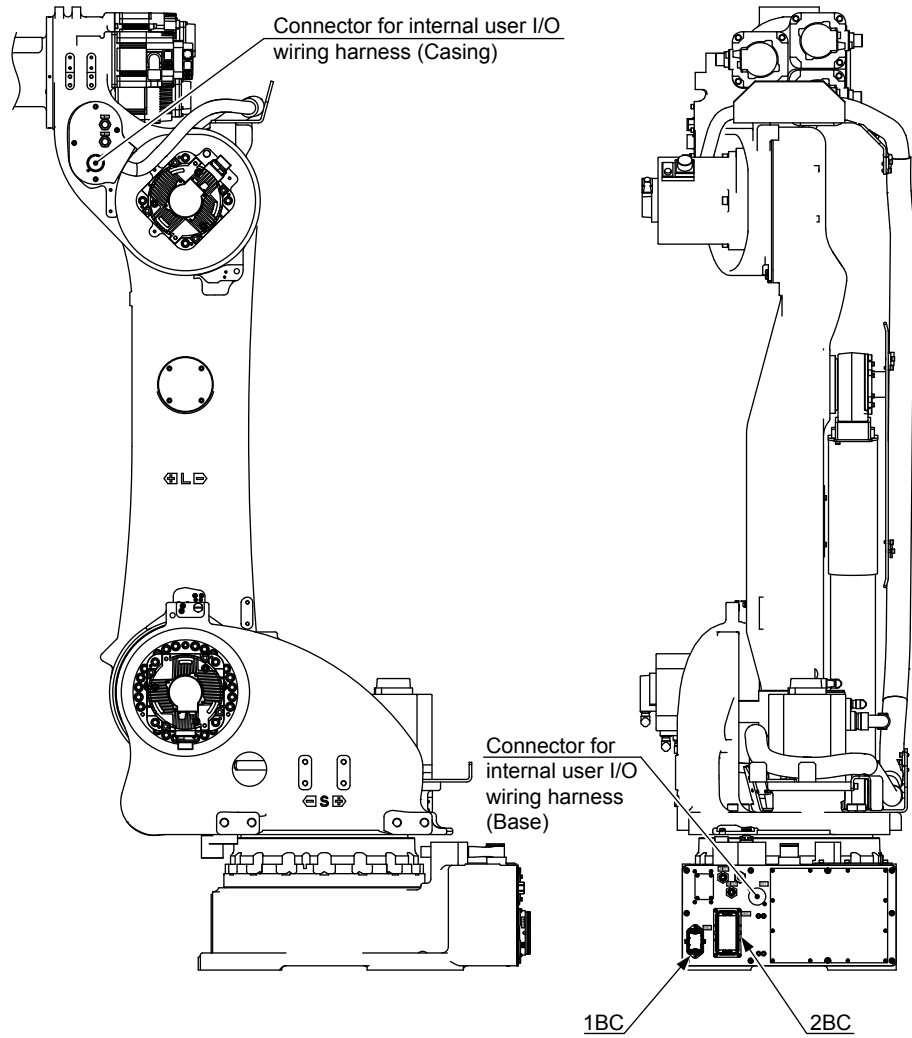


Fig. 8-5(a): Internal Connection Diagram (page 8-3)

Notes

1. This is the internal connection diagram for MOTOMAN-MH180 (Simplified clean-room specifications).
 2. For the limit switch specification, the connection of the section (A) and (B) parts are changed as follows:
 3. When performing the wiring of the overrun limit switch, pay attention to the lead wires.
- The letters marked on the marker tubes at parts (LB1 and LD1) are the same.

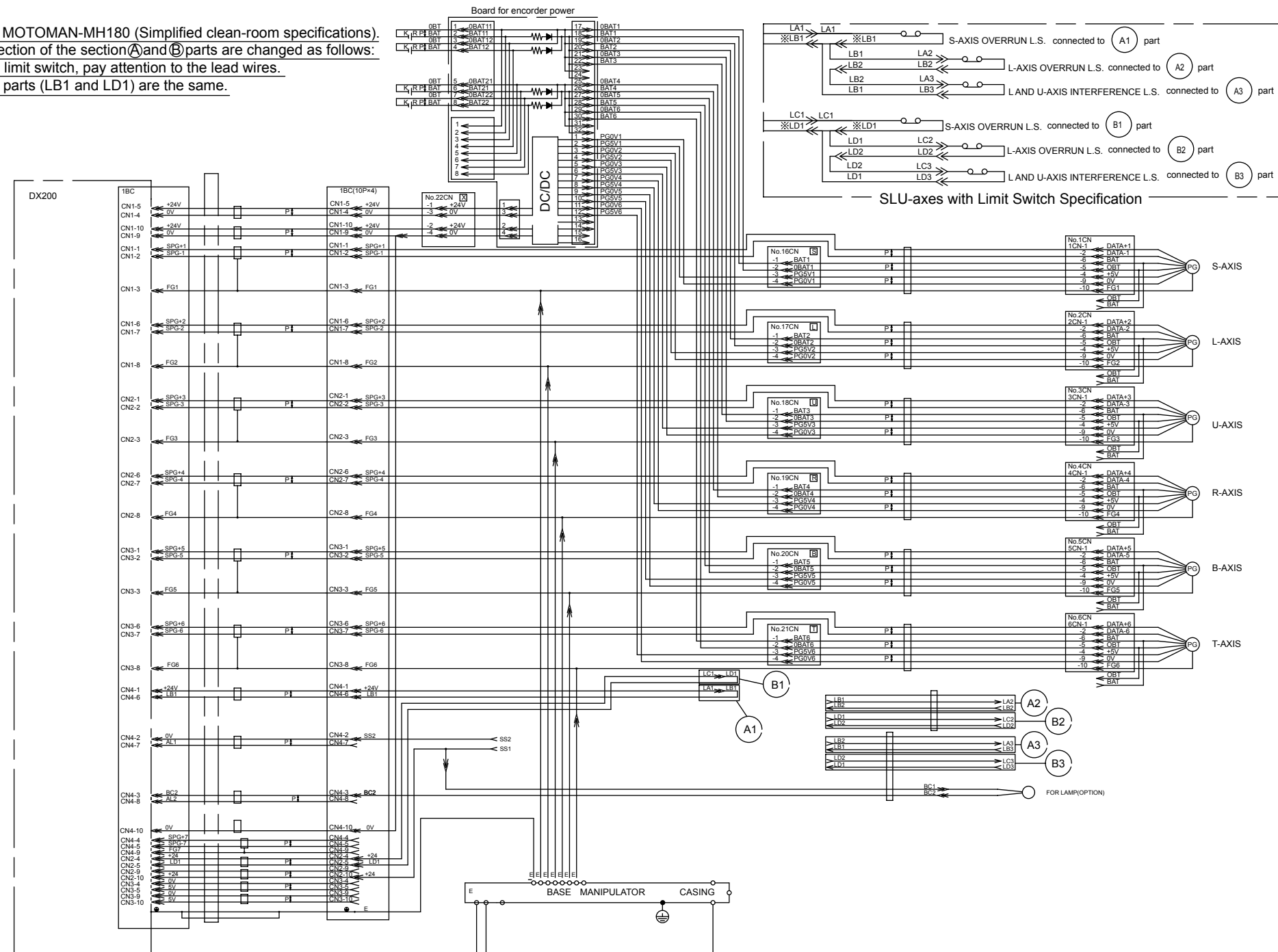
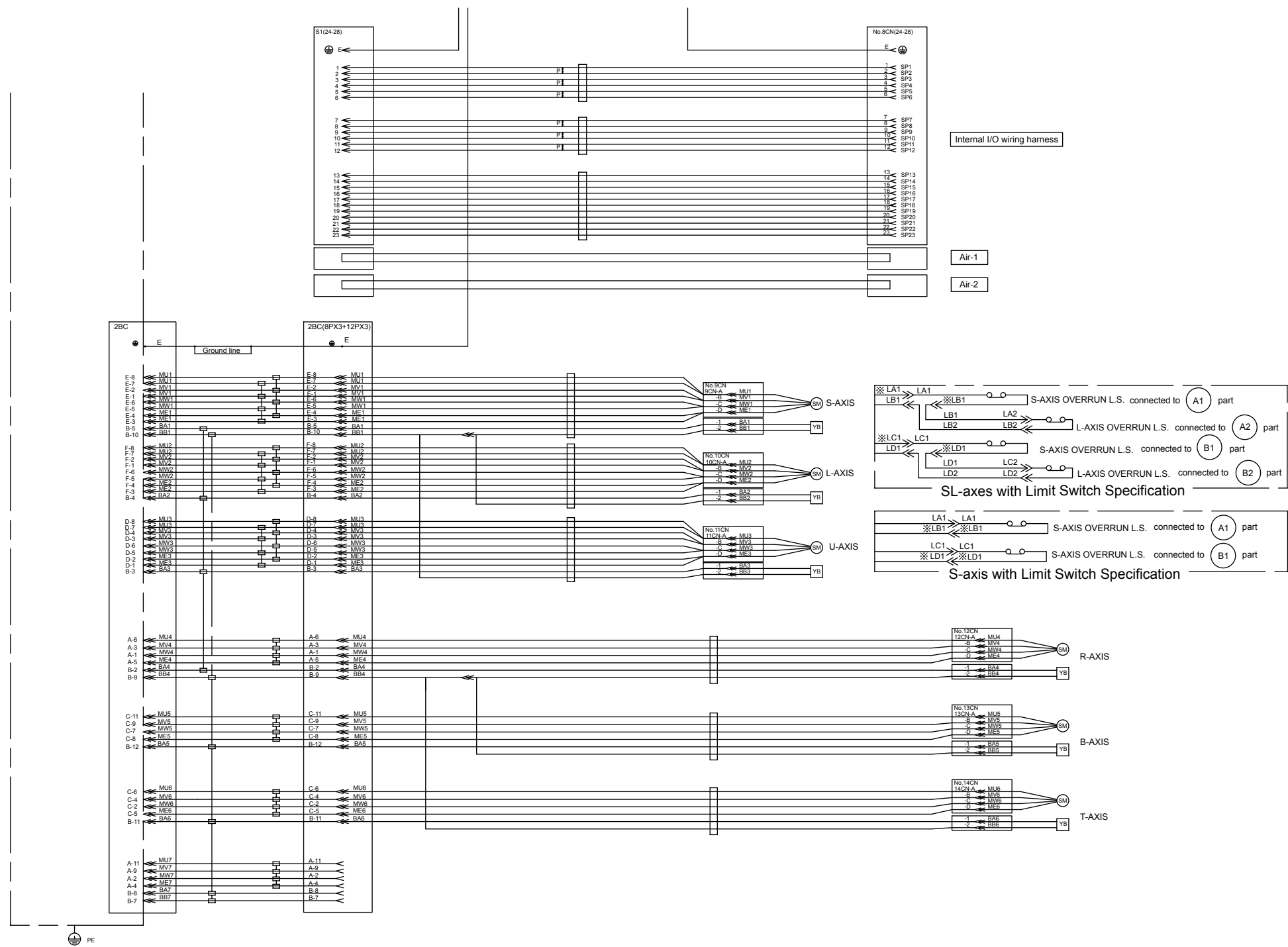


Fig. 8-5(b): Internal Connection Diagram (page 8-4)



9 Maintenance and Inspection

9.1 Inspection Schedule

(Page 9-3)

Replace the following table with *Table 9-2 "Inspection Parts and Grease Used"*.

Table 9-2: Inspection Parts and Grease Used

Inspection number	Grease used	Items
12, 13, 14, 15, 16	VIGO Grease RE No.0	Speed reducers for all axes R-, B-, and T-axis gear
9	Alvania EP Grease 2	Balancer

9.3.1.1 Grease Exchange for the S-, L-, U-, R-, B-, and T-axis Speed Reducer

The grease type to exchange described as "Molywhite RE.00" shall be changed to "VIGO Grease RE No.0".

10 Recommended Spare Parts

(Page 10-2)

Replace the following items with the items in *Table 10-1 "Spare Parts for the YR-MS165/MH180-A00"* in "MOTOMAN-MH180 INSTRUCTIONS."

Table 10-1: Spare Parts for the YR-MS165/MH180-A24

Rank	Parts No.	Name	Type	Manufacturer	Qty	Qty per Unit	Remarks
A	1	Grease	VIGO Grease RE No.0	Yaskawa Electric Corporation	16 kg	-	For each axis speed reducer
B	7	Replacement Kit for S-Axis Speed Reducer	Y005C-MSMH180A24S	Yaskawa Electric Corporation	1	1	
B	8	Replacement Kit for L-Axis Speed Reducer	Y005C-MSMH180A24L	Yaskawa Electric Corporation	1	1	
B	9	Replacement Kit for U-Axis Speed Reducer	Y005C-MSMH180A24U	Yaskawa Electric Corporation	1	1	
B	10	Replacement Kit for R-Axis Speed Reducer	Y005C-MSMH180A24R	Yaskawa Electric Corporation	1	1	
B	11	Replacement Kit for B-Axis Speed Reducer	Y005C-MSMH180A24B	Yaskawa Electric Corporation	1	1	
B	12	Replacement Kit for T-Axis Speed Reducer	Y005C-MSMH180A24T	Yaskawa Electric Corporation	1	1	
B	14	Wrist Unit	HW1171565-F	Yaskawa Electric Corporation	1	1	
C	17	Internal Wire Harness	HW1173353-A	Yaskawa Electric Corporation	1	1	
C	18	Connector Base Set	HW1371448-C	Yaskawa Electric Corporation	1	1	

MOTOMAN-MH180 SUPPLEMENTAL INSTRUCTIONS

Simplified Clean-Room Specifications

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