

TH450/TH550·TH450A/TH550A

Industrial Robot 

**Manual for TH450/TH550
and TH450A/TH550A Differences**

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TOSHIBA MACHINE CO., LTD.

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Introduction

This manual describes the differences between the new SCARA robots TH450A/TH550A and the previous models TH450/TH550. This manual is divided into the sections below.

Chapter 1: Specifications

Chapter 2: Robot Height and Z-axis Position

Chapter 3: Cables Between Robot and Controller

Chapter 4: HAND Input Signal Layout and Number of Inputs/Outputs

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1. Specifications

[Comparison of TH450A and TH450 Specifications]

Compared to the TH450, the TH450A has improved standard cycle time and permissible load inertia.

Additionally, combined with the TS3000 controller, the TH450A has increased hand wires.

No.	Name	TH450	TH450A	Remarks
1	Type	Horizontal multi-articulation		
2	No. of controlled axes	4 axes		
3	Arm length	Full length	450 (mm)	
		Arm 1	200 (mm)	
		Arm 2	250 (mm)	
4	Working envelope	Axis 1	±120 (deg)	
		Axis 2	±145 (deg)	
		Axis 3	0 to 150 (mm)	
		Axis 4	±360 (deg)	
5	Maximum speed	Axis 1	600 (deg/sec)	
		Axis 2	600 (deg/sec)	
		Axis 3	2000 (mm/sec)	
		Axis 4	2000 (deg/sec)	
		Composite	7.3 (m/sec)	
6	Payload mass	Rated	2 (kg)	*1
		Max	5 (kg)	
7	Standard cycle time (when transferring 2 kg)	0.33 (sec)	0.30 (sec)	*2
8	Permissible load inertia	0.05 (kg•m ²)	0.06 (kg•m²)	*1
9	Positioning repeatability	X-Y	±0.01 (mm)	*3
		Z (axis 3)	±0.01 (mm)	
		C	±0.005 (deg)	
10	Drive system	AC servo motor for all axes		
11	Robot body	Mass	27 kg	26 kg
12	Hand wires and pipes	5 inputs and 4 outputs 4 mm diameter x 4	8 inputs and 8 outputs 4 mm diameter x 4	
13	Options	<ul style="list-style-type: none"> • Ceiling suspension model • Z-axis long stroke • Top cap model 	<ul style="list-style-type: none"> • Ceiling suspension model • Z-axis long stroke • Top cap model • IP • Cleanroom model 	*4

*1 : Maximum speed rates and acceleration rates are limited depending on motion patterns, payload mass, and load inertia.

*2: Continuous operation of standard cycle motion pattern is not possible beyond the effective load ratio.
(Horizontal 300 mm, vertical 25 mm, round-trip, coarse positioning)

*3: When the environment temperature is constant.

*4 : For information about the availability of other options, please contact the Sales Department.

[Comparison of TH550A and TH550 Specifications]

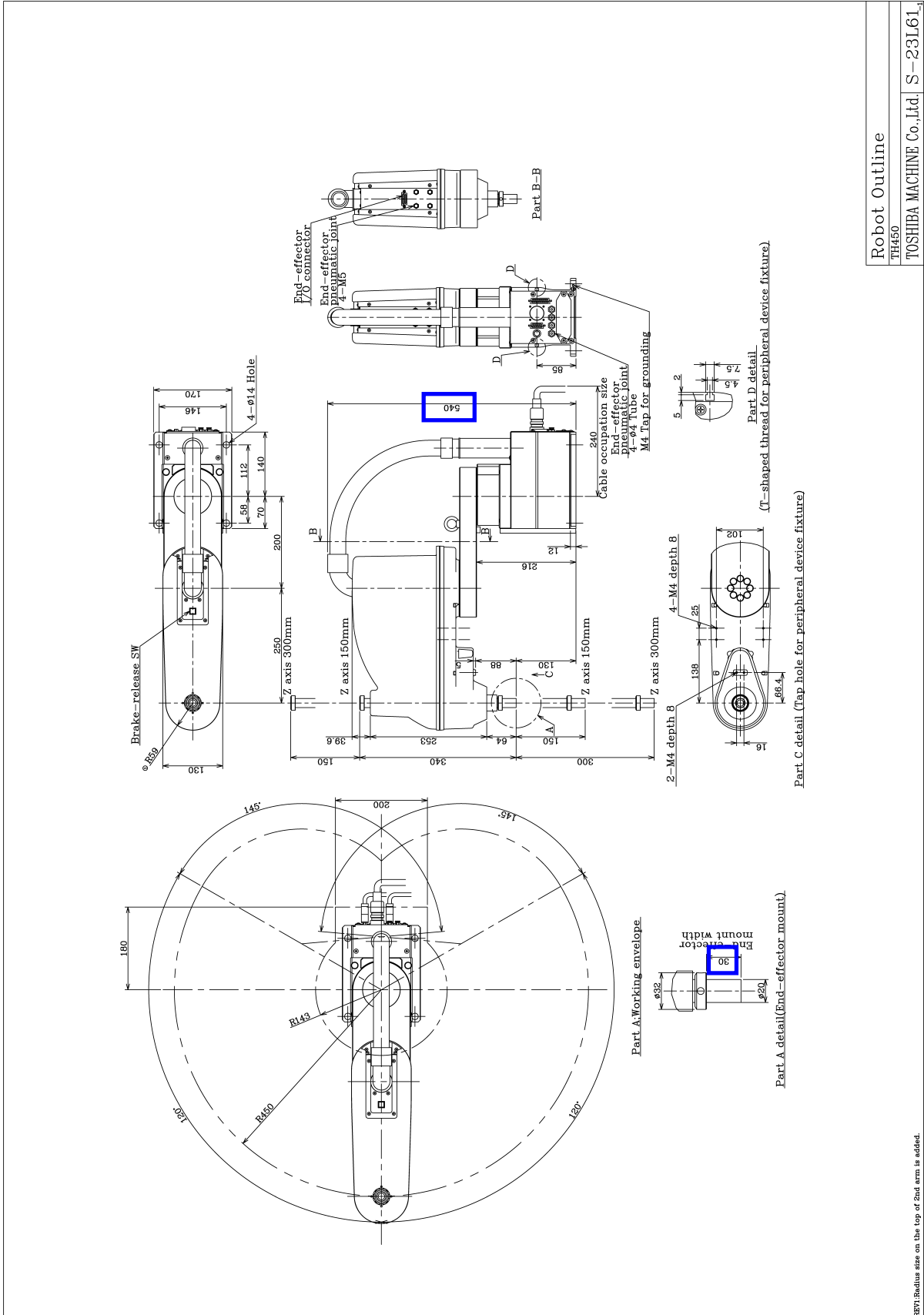
Compared to the TH550, the TH550A has improved standard cycle time and permissible load inertia.

Additionally, combined with the TS3000 controller, the TH550A has increased hand wires.

No.	Name	TH550	TH550A	Remarks
1	Type	Horizontal multi-articulation		
2	No. of controlled axes	4 axes		
3	Arm length	Full length	550 (mm)	
		Arm 1	300 (mm)	
		Arm 2	250 (mm)	
4	Working envelope	Axis 1	±120 (deg)	
		Axis 2	±145 (deg)	
		Axis 3	0 to 150 (mm)	
		Axis 4	±360 (deg)	
5	Maximum speed	Axis 1	375 (deg/sec)	
		Axis 2	600 (deg/sec)	
		Axis 3	2000 (mm/sec)	
		Axis 4	2000 (deg/sec)	
		Composite	6.21 (m/sec)	
6	Payload mass	Rated	2 kg	*1
		Max	5 kg	
7	Standard cycle time (when transferring 2 kg)	0.33 (sec)	0.30 (sec)	*2
8	Permissible load inertia	0.05 (kg•m ²)	0.06 (kg•m²)	*1
9	Positioning repeatability	X-Y	±0.01 (mm)	*3
		Z (axis 3)	±0.01 (mm)	
		C	±0.005 (deg)	
10	Drive system	AC servo motor for all axes		
11	Robot body	Mass	29 kg	28 kg
12	Hand wires and pipes	5 inputs and 4 outputs 4 mm diameter x 4	8 inputs and 8 outputs 4 mm diameter x 4	
13	Options	<ul style="list-style-type: none"> • Ceiling suspension model • Z-axis long stroke • Top cap model 	<ul style="list-style-type: none"> • Ceiling suspension model • Z-axis long stroke • Top cap model • IP • Cleanroom model 	*4

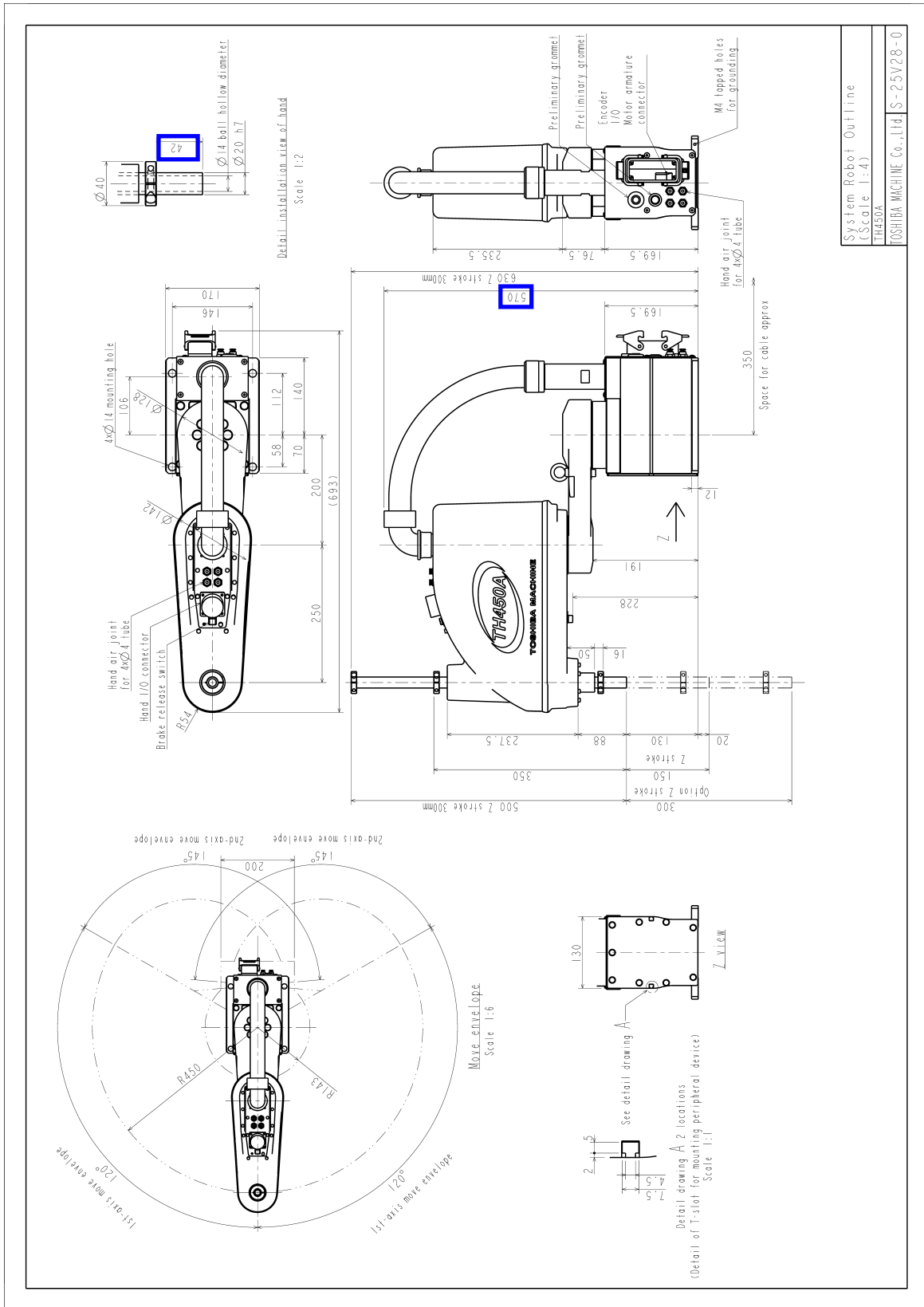
- *1 : Maximum speed rates and acceleration rates are limited depending on motion patterns, payload mass, and load inertia.
- *2: Continuous operation of standard cycle motion pattern is not possible beyond the effective load ratio.
(Horizontal 300 mm, vertical 25 mm, round-trip, coarse positioning)
- *3: When the environment temperature is constant.
- *4 : For information about the availability of other options, please contact the Sales Department.

2. Robot Height and Z-axis Position



Robot Outline
TH450
TOSHIBA MACHINE Co.,Ltd. S-23L61

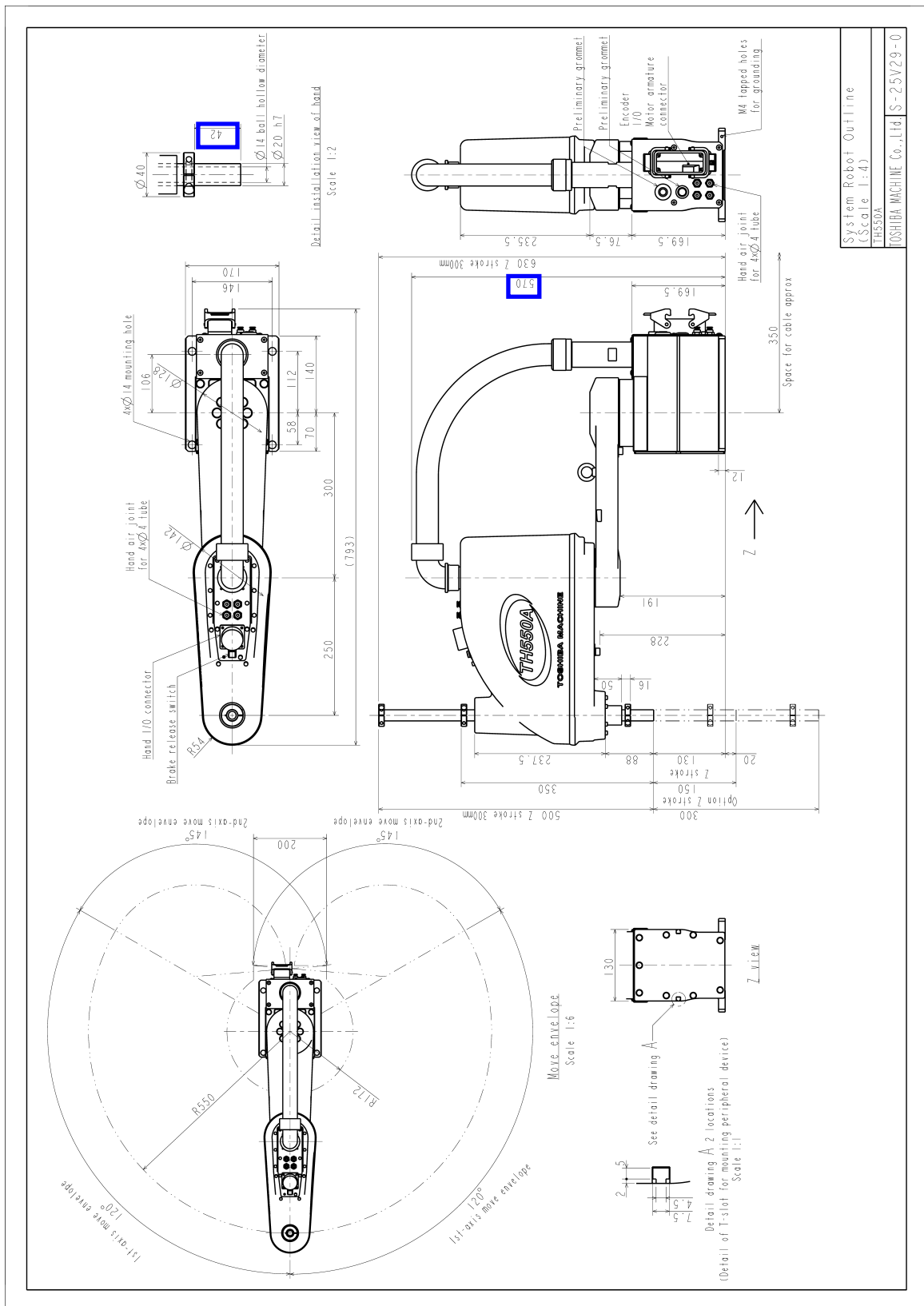
REPLY: Radius size on the top of 2nd arm is added.



System Robot Outline (Scale 1:4)
TH450A
TOSHIBA MACHINE Co., Ltd. S-25V28-0

The TH450 has a total height of 540 mm. The **TH450A** has a total height of 570 mm, which is 30 mm higher than the TH450.

Also, the distance from the bottom surface of the Z axis of the hand mounting area to the stopper is different between these two models (TH450: 30 mm, **TH450A: 52 mm**).



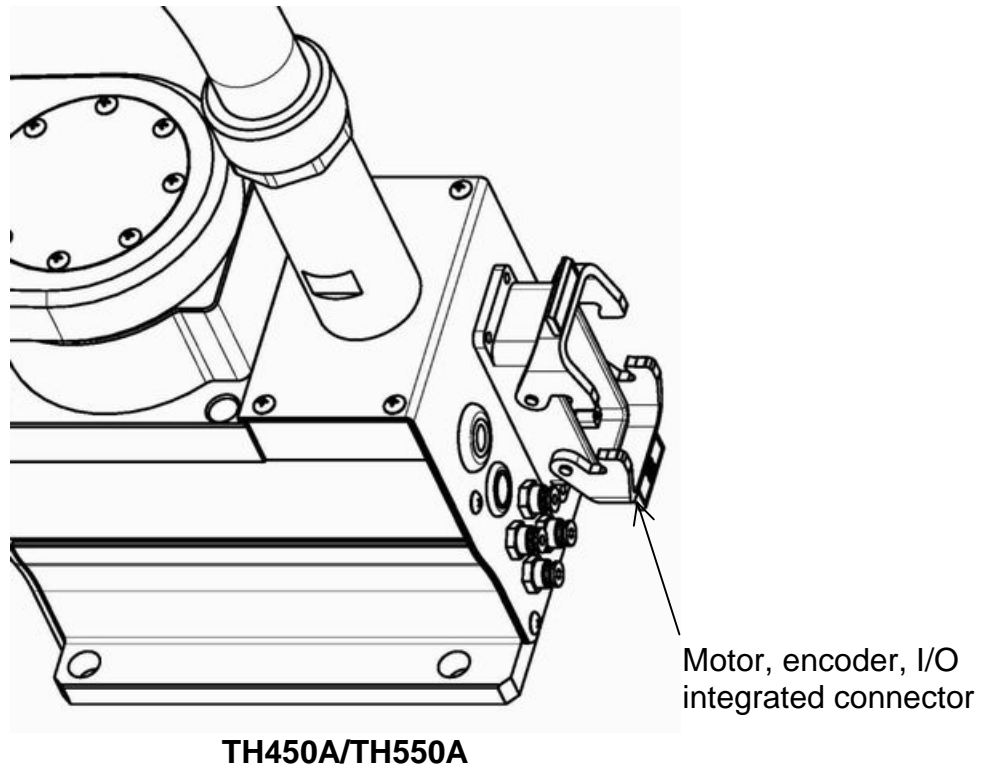
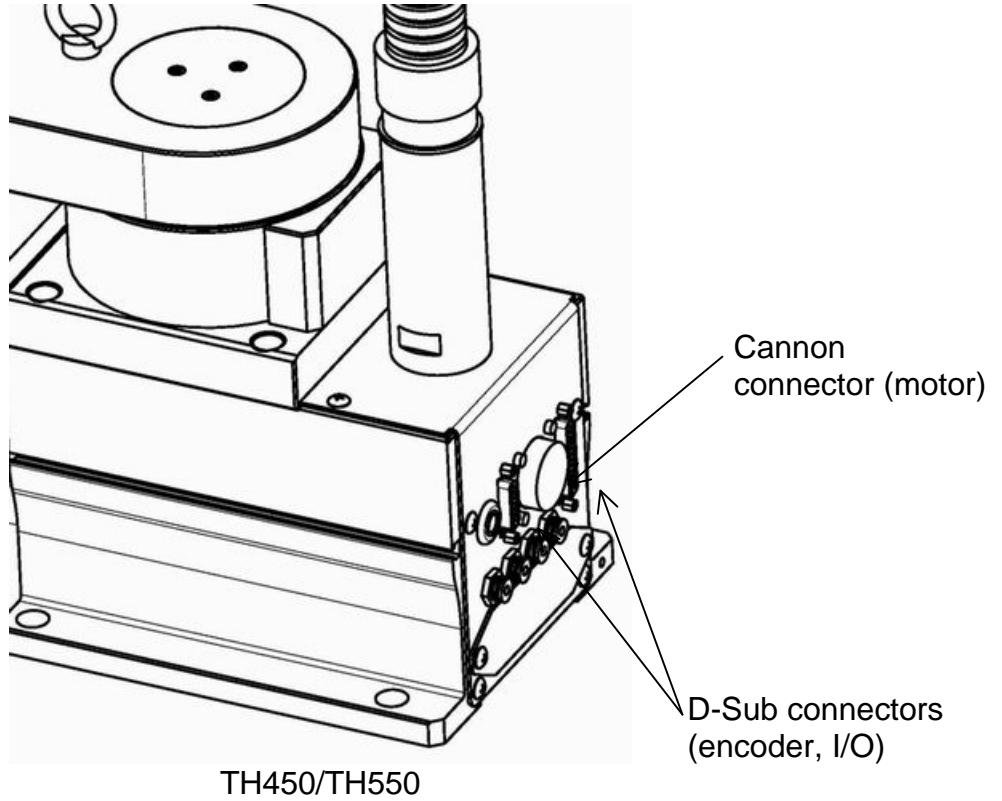
The TH550 has a total height of 540 mm. The **TH550A** has a total height of 570 mm, which is 30 mm higher than the TH550.

Also, the distance from the bottom surface of the Z axis of the hand mounting area to the stopper is different between these two models (TH550: 30 mm, **TH550A: 42 mm**).

3. Cables Between Robot and Controller

The TH450/TH550 use one Cannon connector and two D-Sub connectors on the robot side.

The TH450A/TH550A use a single integrated connector.

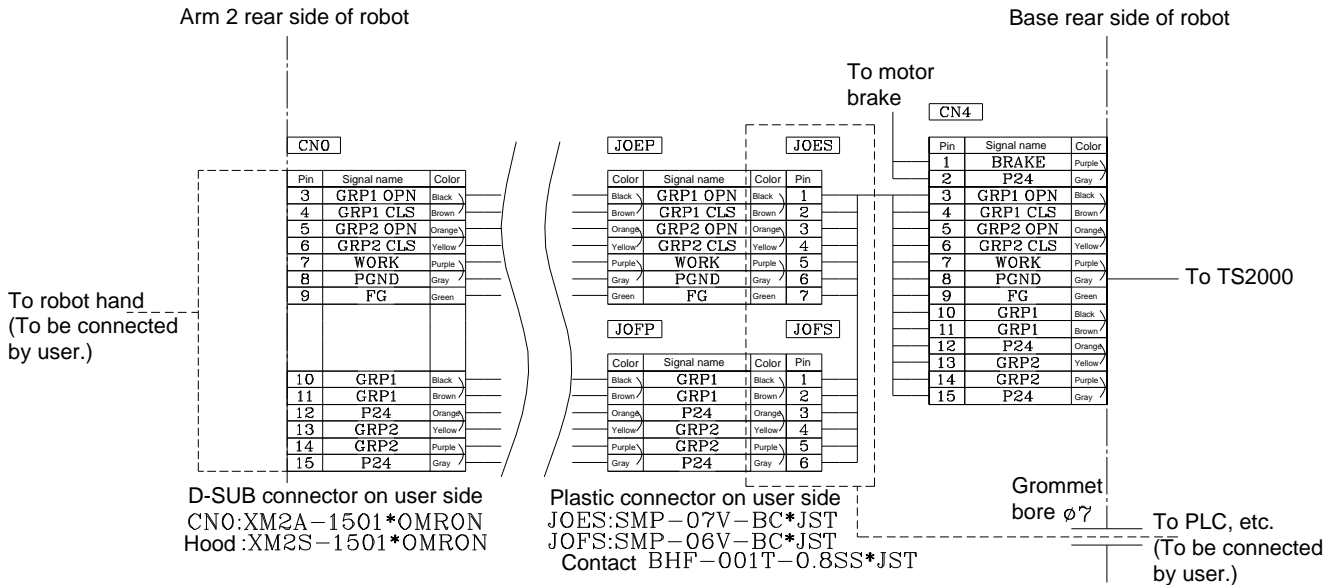


4. HAND Input Signal Layout and Number of Inputs/Outputs

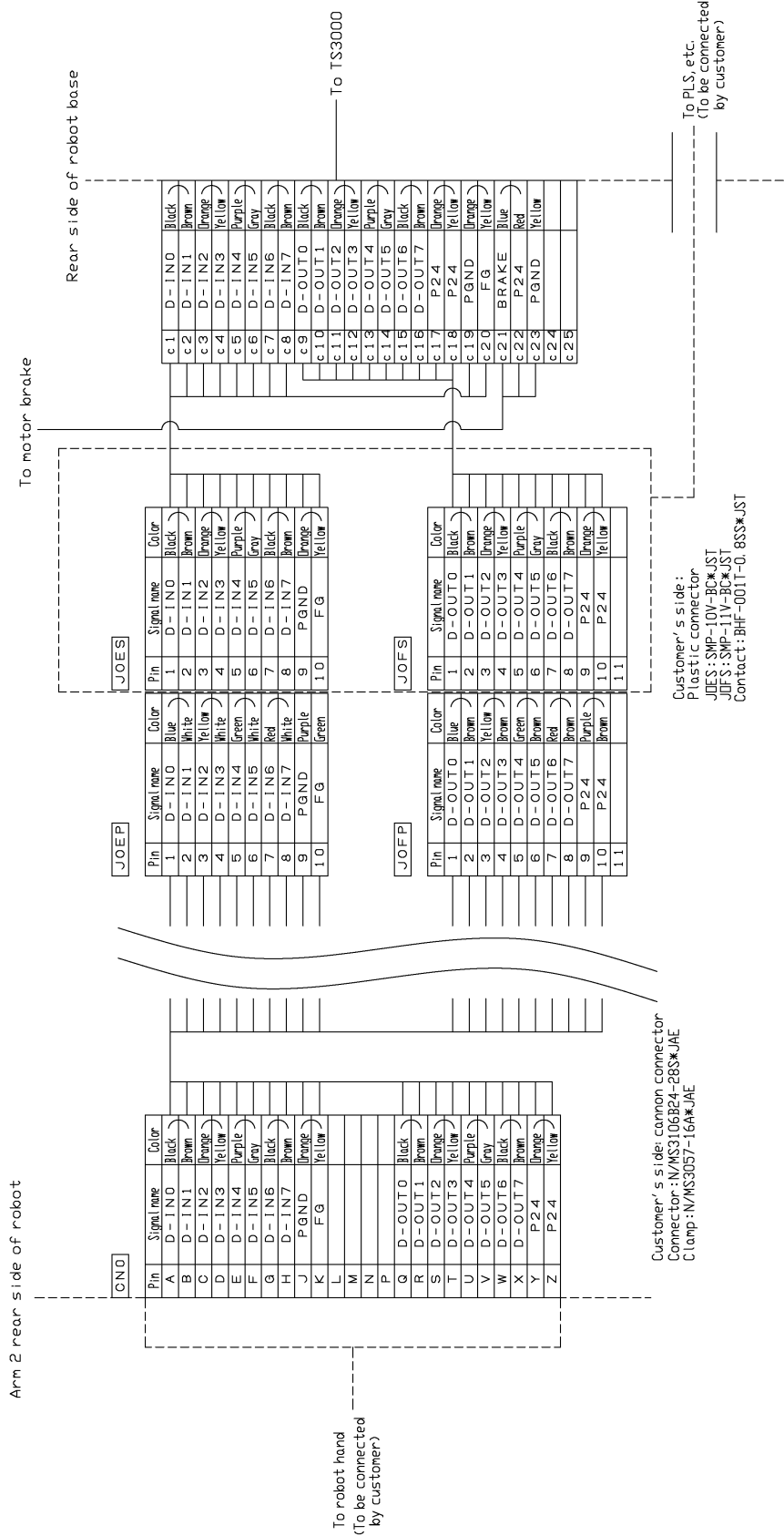
The TH450/TH550 are provided with 5 inputs and 4 outputs for the CN0 (D-Sub) connector.

The **TH450A/TH550A** are provided with 8 inputs and 8 outputs for the CN0 (cannon) connector.

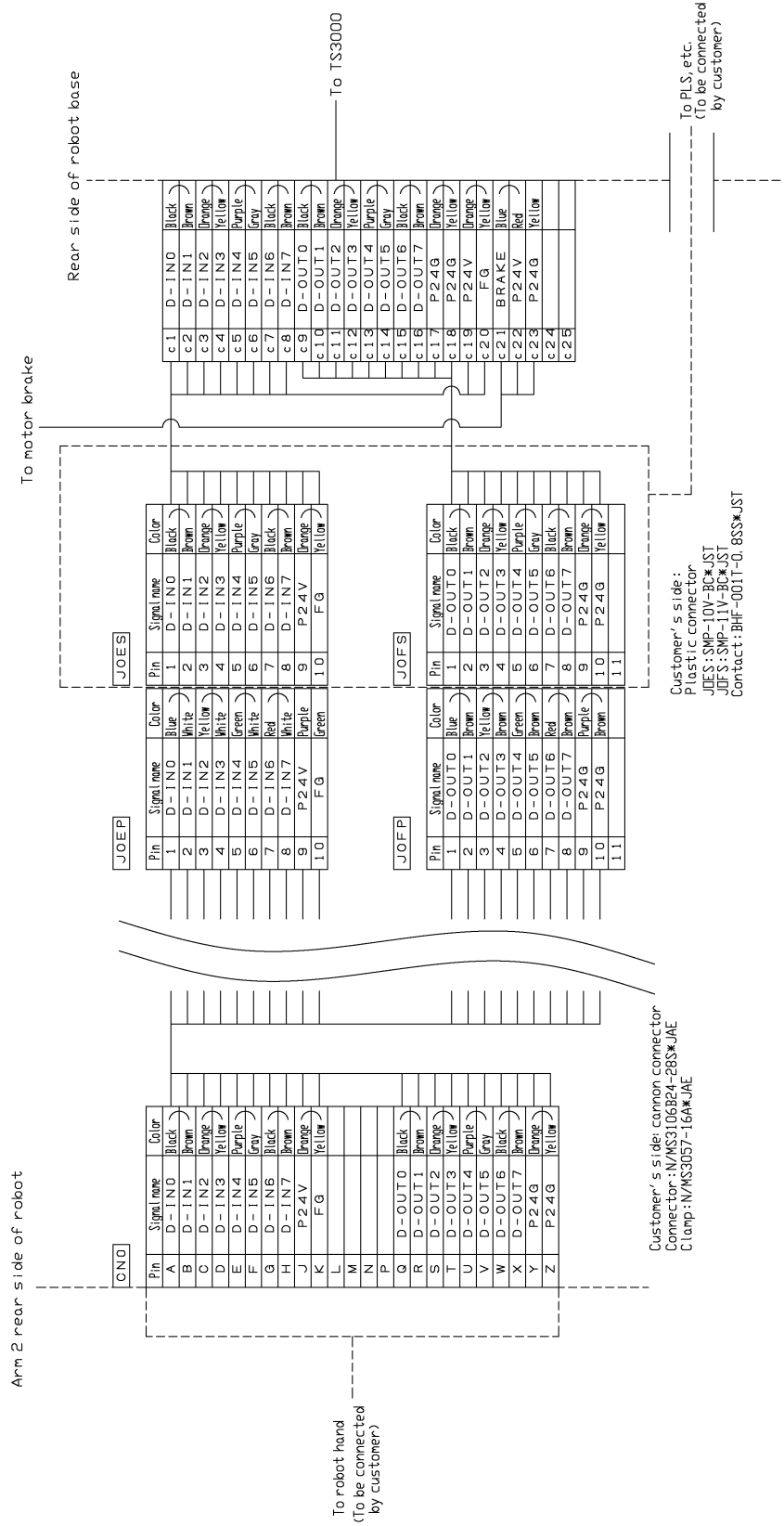
The connector position may vary.



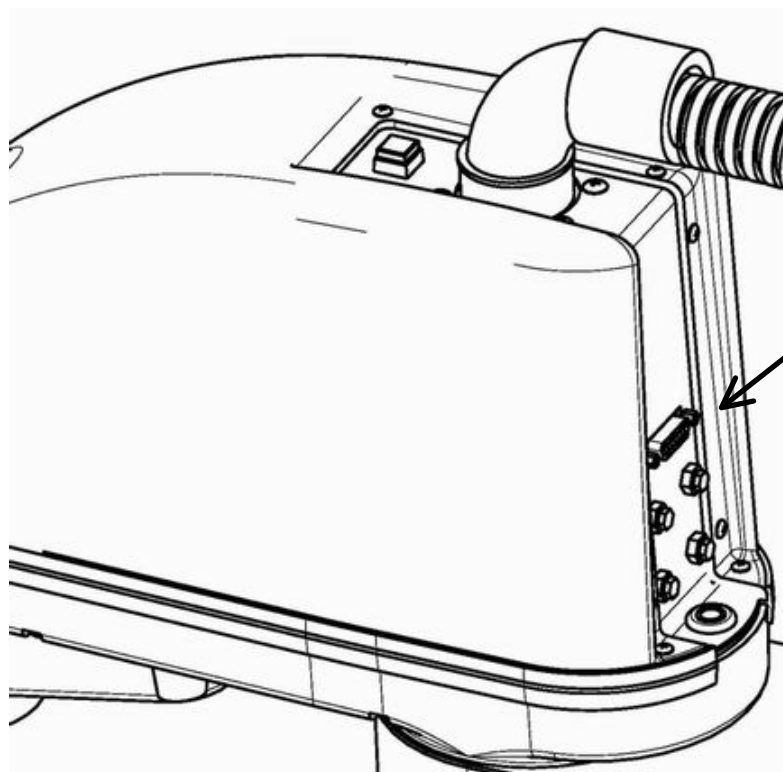
TH450/TH550 Tool Wiring



TH450A/TH550A Tool Wiring (Type-N)

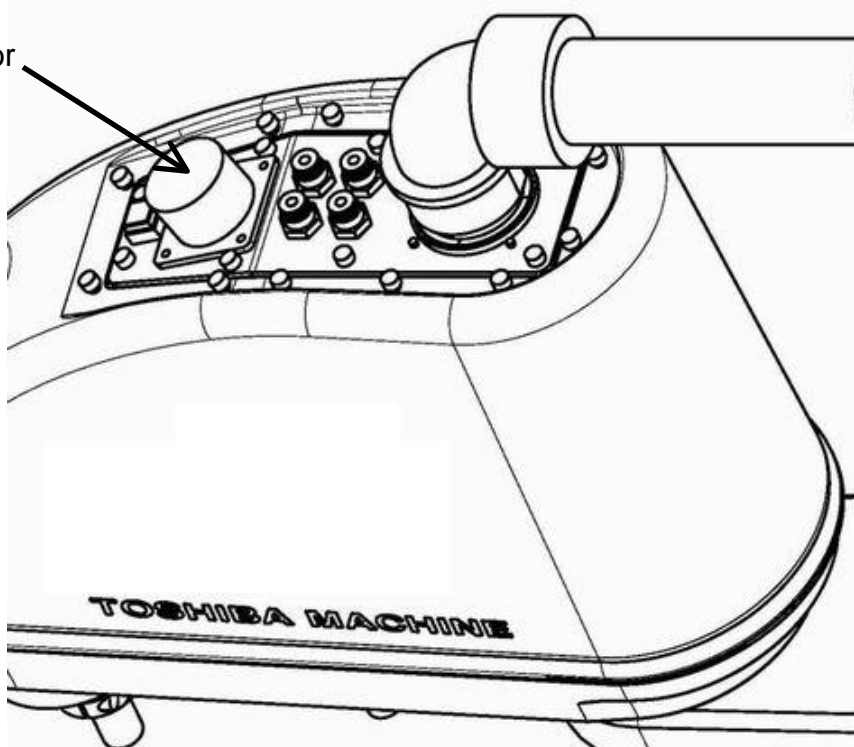


TH450A/TH550A Tool Wiring (Type-P)



TH450/TH550

CN0 connector



TH450A/TH550A

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