1. SPECIFICATIONS

3. MAIN SPECIFICATIONS

3.1 Robot

3.1.1 Nomenclature

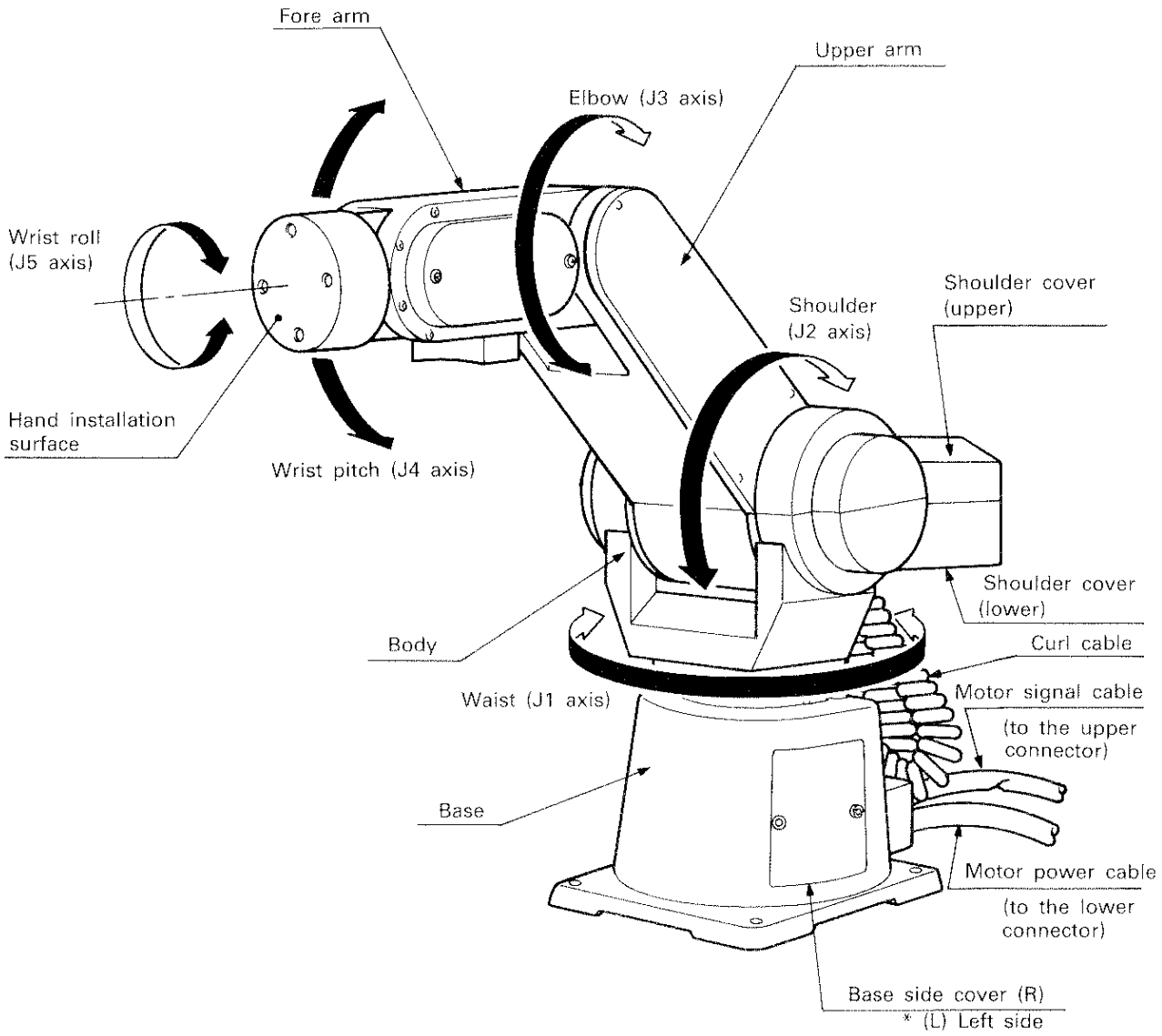

Fig. 1.3.1 Nomenclature (External View)

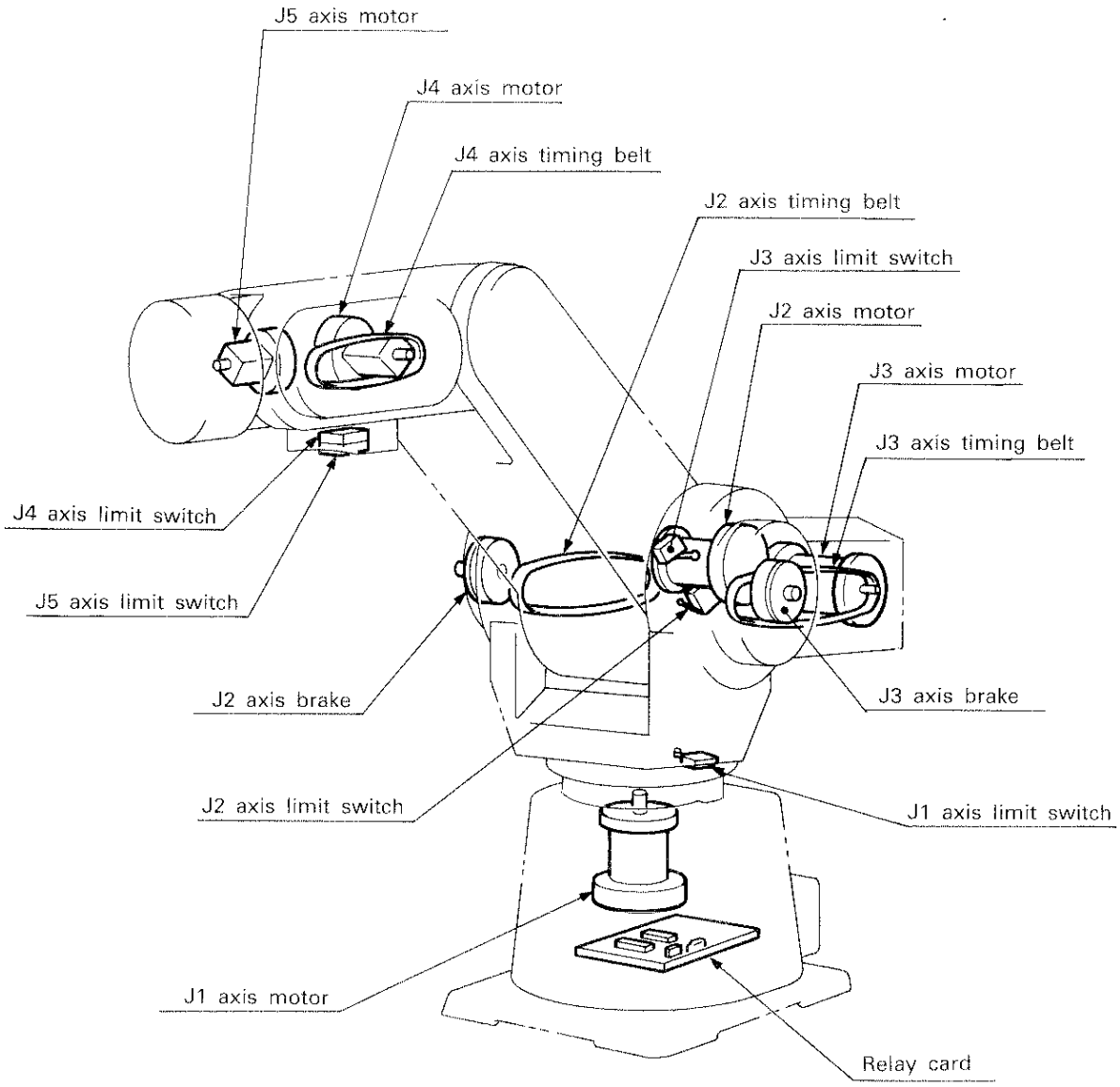

Fig. 1.3.2 Nomenclature (Internal View)

1. SPECIFICATIONS

3.1.2 Standard specifications

Item		Specifications	Remarks
Mechanical Structure		5 degrees of freedom, vertical articulated robot	
Operation range	Waist rotation	300° (max. 120°/sec)	J1 axis
	Shoulder rotation	130° (max. 72°/sec)	J2 axis
	Elbow rotation	110° (max. 109°/sec)	J3 axis
	Wrist pitch	±90° (max. 100°/sec)	J4 axis
	Wrist roll	±180° (max. 163°/sec)	J5 axis
Arm length	Upper arm	250mm	
	Fore arm	160mm	
Weight capacity		Max. 1.2kgf (including the hand weight)	75mm from the mechanical interface (center of gravity)
Maximum path velocity		1000mm/sec (wrist tool surface)	Speed at point P in Fig. 1.3.4
Position repeatability		0.3mm (roll center of the wrist tool surface)	Accuracy at point P in Fig. 1.3.4
Drive system		Electrical servo drive using DC servo motors	
Robot weight		Approx. 19kgf	
Motor capacity		J1 to J3 axes: 30W; J4, J5 axes: 11W	

Table 1.3.1 Standard Specifications

3.1.3 External dimensions

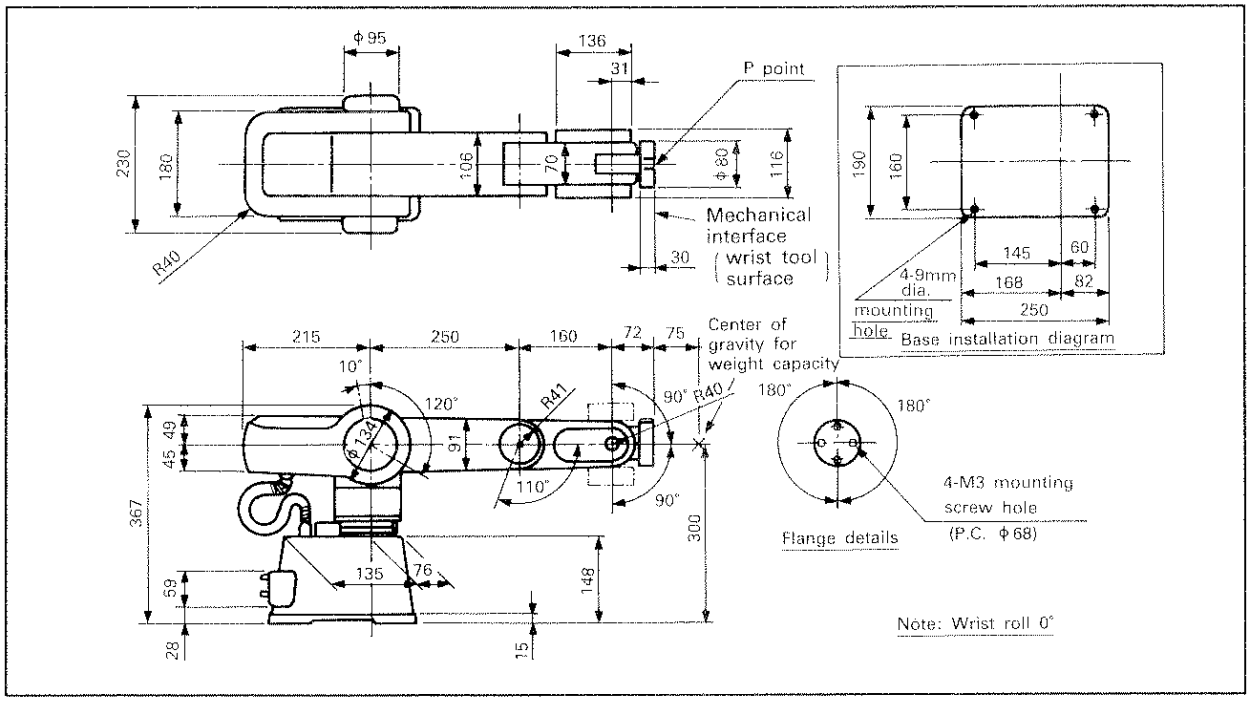

Fig. 1.3.3 External Dimensions

3.1.4 Operation space

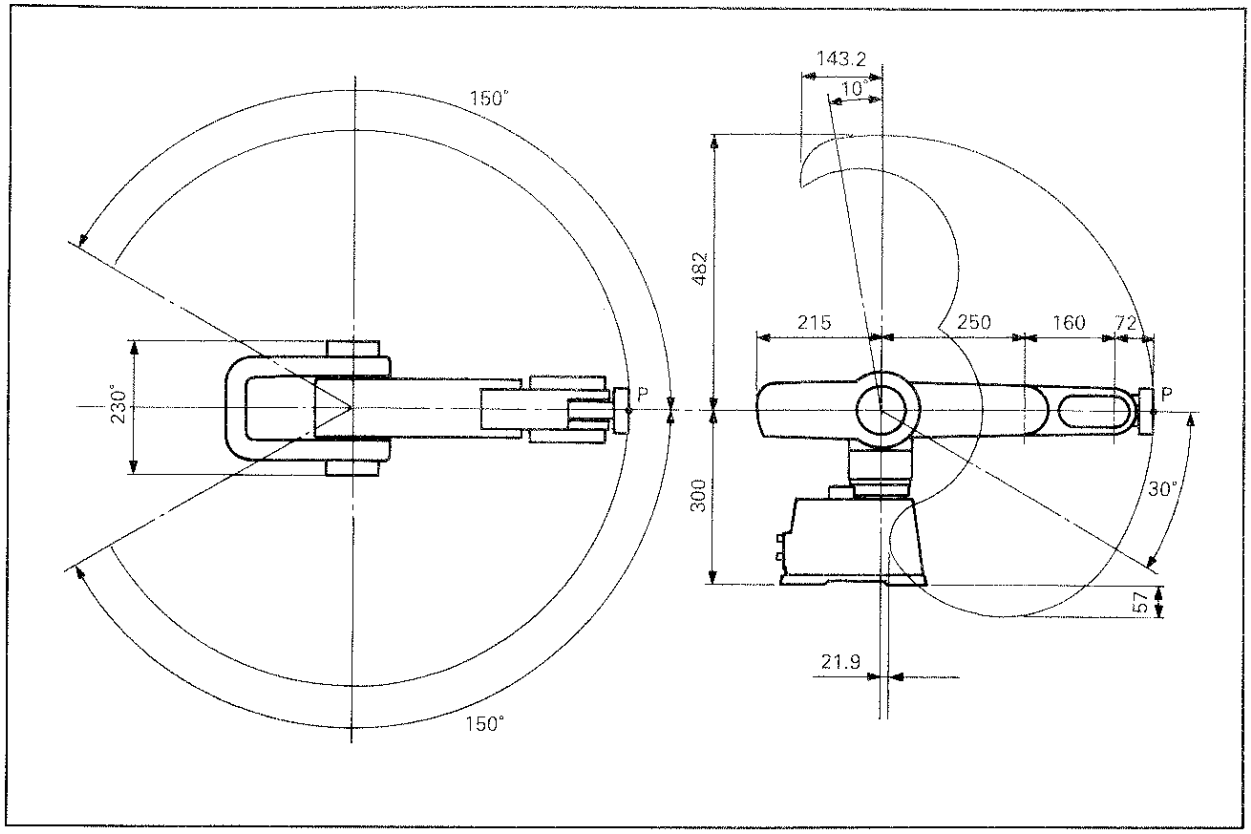

Fig. 1.3.4 Operation Space

Note 1: The operation space indicated in Fig. 1.3.4 assume that the hand is not installed to the robot. (Trace of point P)

Note 2: The wrist pitch operation may be restricted in some area depending the upper arm and fore arm positions. For details, see Fig. 5.11.1 in the appendix.

Note 3: Jog operation must be performed with special care as the wrist may interfere with the robot base and floor surface.

REMARKS

Jog operation indicates a manual operation using the teaching box.

3.1.5 Basic operations

Fig. 1.3.5 shows axis operations in the articulated system.

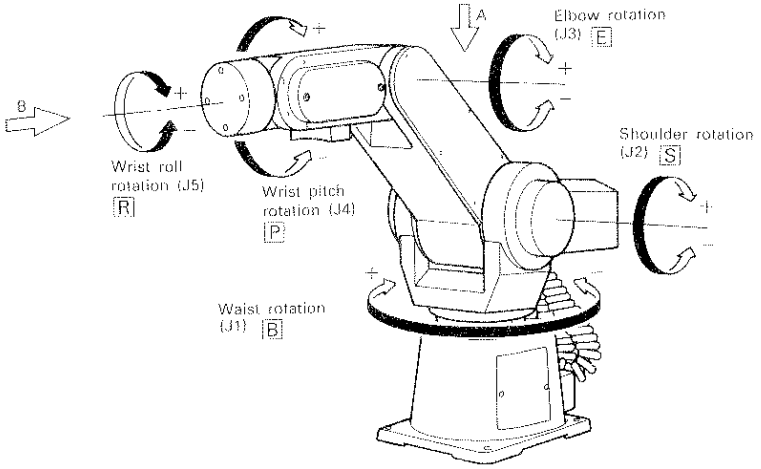

Fig. 1.3.5 Operations in Articulated System

Note 1: The positive direction of the J1 and J5 axis operations is clockwise as viewed from arrows A and B, respectively.

Note 2: The positive direction of the J2, J3 and J4 axis operations is the upward direction of the arm and wrist.

Fig. 1.3.6 shows operations in the cartesian coordinate system.

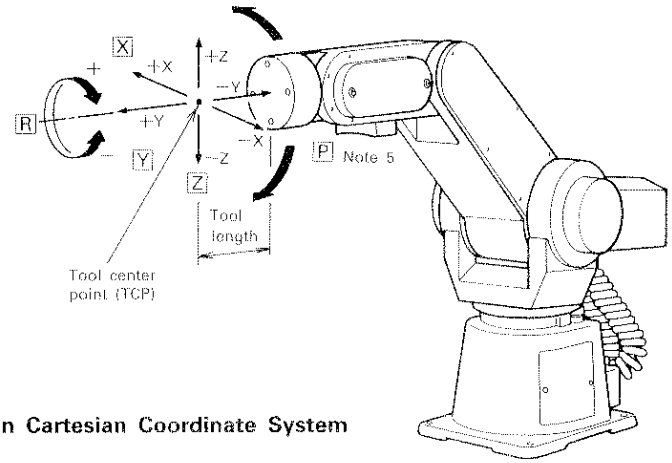

Fig. 1.3.6 Operations in Cartesian Coordinate System

Note 3: The TCP moves straight in the Cartesian coordinate system.

Note 4: The tool length is set by a parameter. (See the TL command.)

Note 5: [P] indicates the robot attitude changing operation without moving the TCP.

Note 6: [Z] indicates the forward and backward motions in the tool length direction.

REMARKS

Symbols in "[ ]" indicate the control keys of the teaching box.