JUKI

INDUSTRIAL SEWING MACHINE
Attachment

MODEL

MP-J60-AO

TECHNICAL MANUAL

Pneumatic Type Clamp

A181E170P01

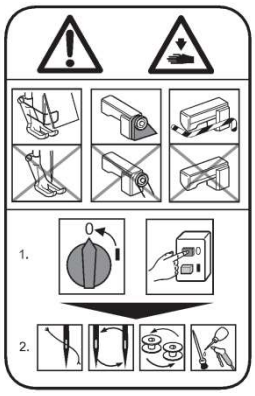
FOR SAFE USE

Before the installation, operation, and inspection for this product, read the “FOR SAFE USE” and the technical manuals carefully. Also read the other technical manuals, “Sewing Machine Head”, “Control Unit” and “Operation Panel” describing some instructions, which are not in this manual, and use the sewing machine properly.

SAFETY INDICATIONS

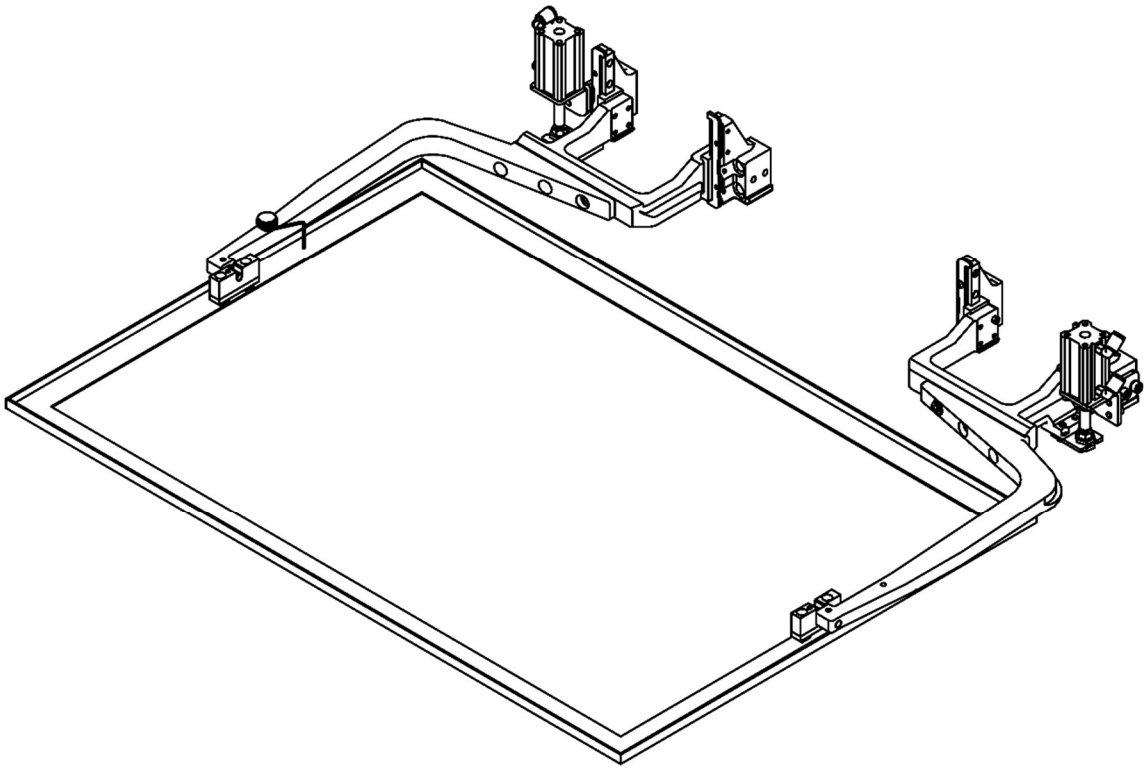
⚠ CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage. Note that CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

CAUTION INDICATIONS

No.	Caution indication	Description
1		<u>Precaution for sewing machine operation</u>: Indicates that removing the safety and operating the sewing machine for some other purposes with power-on are prohibited. ● Please do not operate the sewing machine without protective equipment such as a needle guard, an eye guard, a belt cover or the others. ● Please turn off the power switch when threading, changing a needle and a bobbin, cleaning, and lubricating.
2		<u>Caution for fingers injury</u>: Indicates a possibility of fingers (hands) injury in a certain condition.
3		<u>Caution for squeezing fingers</u>: Indicates a possibility of squeezing fingers in a certain condition.

1. Features

The pneumatic type clamp device can be added to the jig eject device that comes standard on the PLK-J6040/J6040R/J6040R3. By holding down the sewing material, it can prevent the material from shifting during sewing.



2. Specifications

Name		: MP-J60-AO (pneumatic type clamp)
Applicable model		: PLK-J6040/J6040R/J6040R3
Sewing area		: 600 (X) x 400 (Y) mm (same as standard specifications)
Clamp UP position		: 30 mm
Drive source air pressure	Primary side	: 0.5 MPa (5 kg/cm^2)
	Secondary side	: 0.4 MPa (4 kg/cm^2)

⚠ CAUTION

Trouble such as operation errors could occur if the secondary pressure is set too high.
Use within the range of 0.4 MPa (4 kg/cm^2).

3. Configuration

★ The Fig. numbers in the drawing correspond to the part numbers given in the following explanations.

3.1 Clamp mechanism

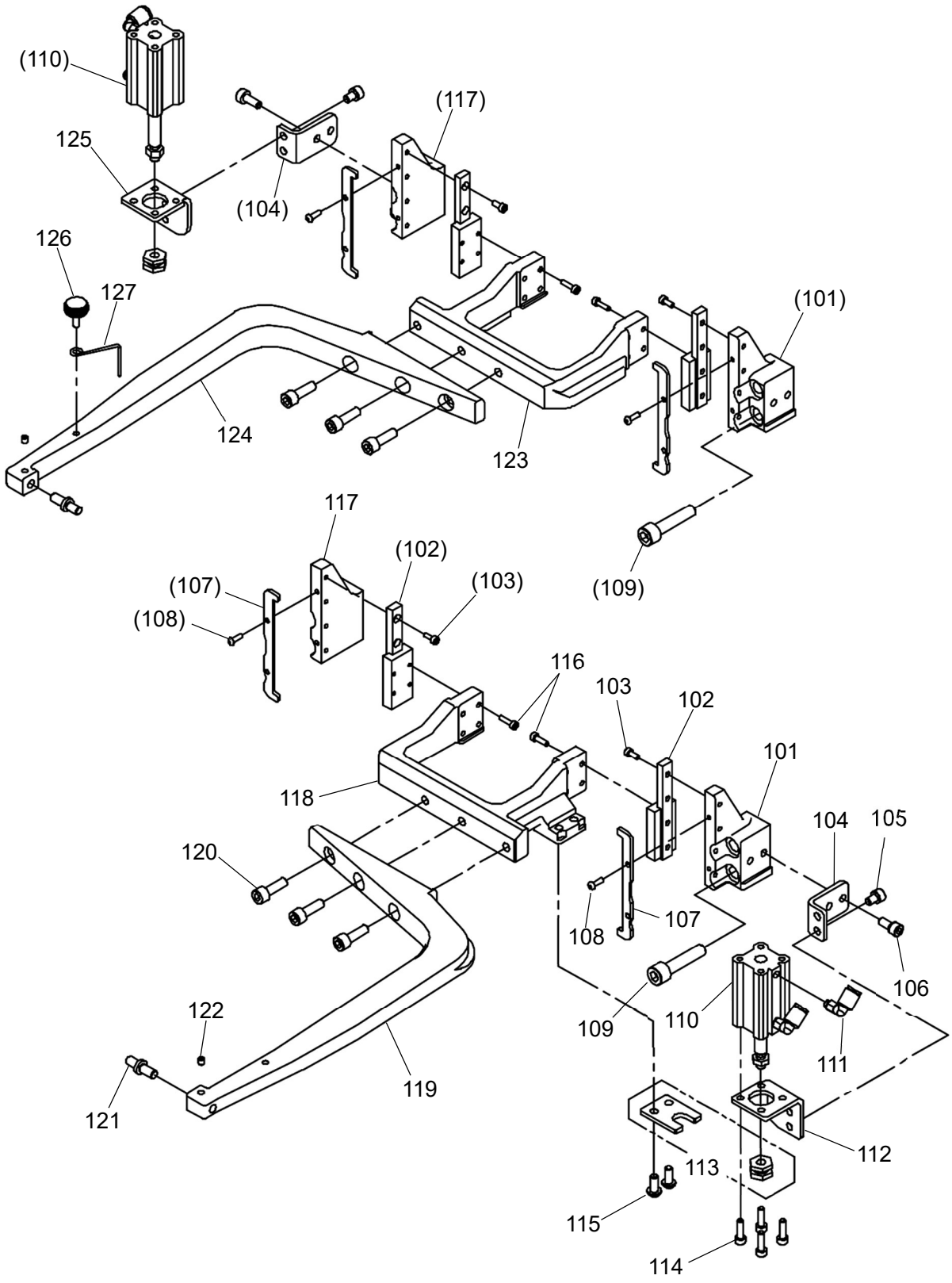
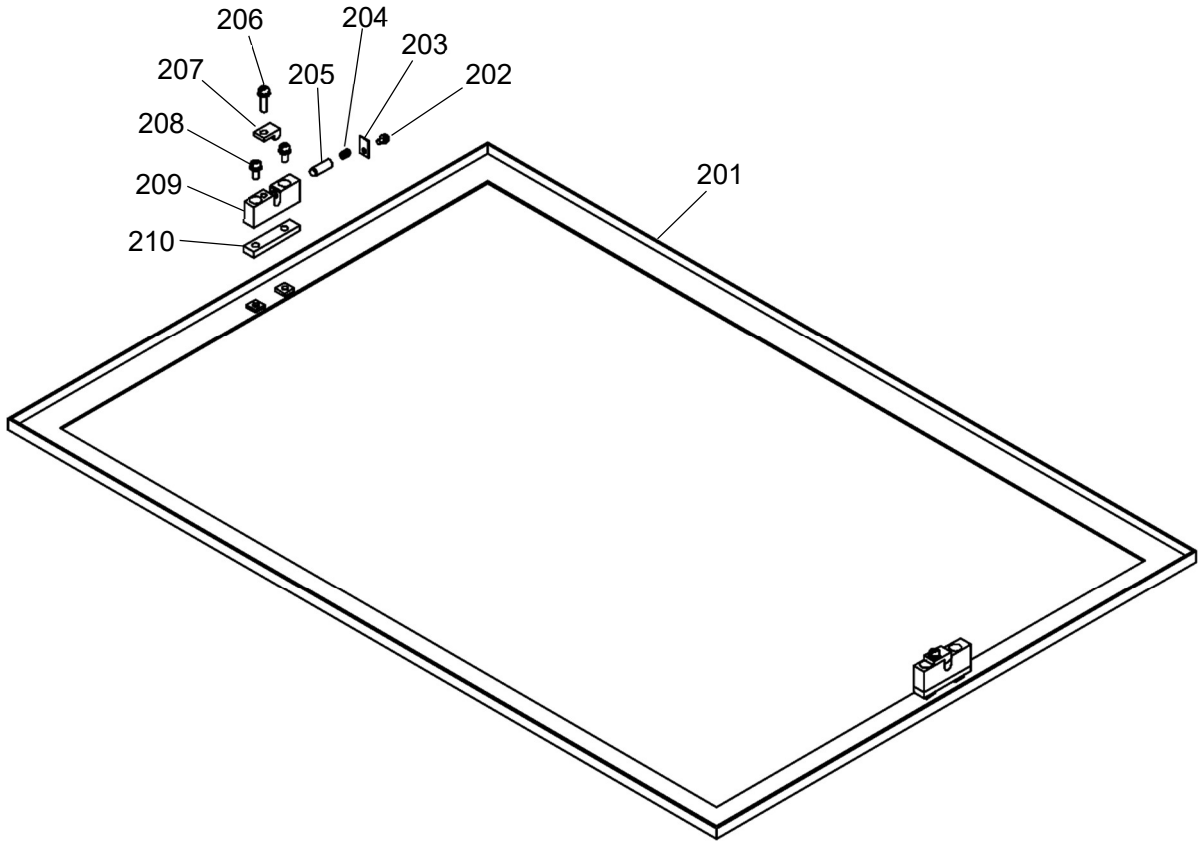


Fig No.	部品コード Parts No.	品　　名	Description	数量 Amt. Req.
101	MJ60A3758	ﾌﾞﾗｹｯﾄ ﾐｷﾞ	Right side bracket	2
102	MJ60A3920	ﾘﾆｱｶﾞｲﾄﾞ	Linear guide	4
103	M93027021	ﾛｯｶｸｱﾅﾂｷﾎﾞﾙﾄ M3X8	Socket bolt M3X8	16
104	MJ60A5758	ｼﾘﾝﾀﾞﾌﾞﾗｹｯﾄ	Cylinder bracket	2
105	M95017017	ｾﾌﾃｨｿｹｯﾄ M5X8	Safety socket bolt M5X8	4
106	M95019017	ｾﾌﾃｨｿｹｯﾄ M5X12	Safety socket bolt M5X12	4
107	MJ60A3477	ｽﾄｯﾊﾟ	Stopper	4
108	M91606022	ﾛｯｶｸｱﾅﾂｷﾎﾞﾀﾝﾎﾞﾙﾄ M3X10	Button bolt M3X10	8
109	M98092021	ﾛｯｶｸｱﾅﾂｷﾎﾞﾙﾄ M8X40	Socket bolt M8X40	8
110	MJ60A4434	ｳｽｶﾞﾀｼﾘﾝﾀﾞ	Air cylinder	2
111	MB61A1571	ｴﾙﾎﾞﾕﾆｵﾝ	Connector	4
112	MJ60B3601	ｼﾘﾝﾀﾞﾄﾘﾂｹｲﾀ ﾐｷﾞ	Right side cylinder plate	1
113	MJ60A4571	F ｼﾞｮｲﾝﾄ	F joint	2
114	M94055021	ﾛｯｶｸｱﾅﾂｷﾎﾞﾙﾄ M4X14	Socket bolt M4X14	8
115	M95031021	ﾛｯｶｸｱﾅﾂｷﾎﾞﾀﾝﾎﾞﾙﾄ M5X12	Button bolt M5X12	4
116	M93029021	ﾛｯｶｸｱﾅﾂｷﾎﾞﾙﾄ M3X12	Socket bolt M3X12	16
117	MJ60A4758	ﾌﾞﾗｹｯﾄ ﾋﾀﾞﾘ	Left side bracket	2
118	MJ60A0273	ｵｻｴｳﾃﾞ A ﾐｷﾞ	Right side clamp frame A	1
119	MJ60A1273	ｵｻｴｳﾃﾞ B ﾐｷﾞ	Right side clamp frame B	1
120	M96018017	ｾﾌﾃｨｿｹｯﾄ M6X20	Safety socket bolt M6X20	6
121	MB62A5454	ｵｻｴｼﾞｸ	Clamp stud	2
122	M91050020	ﾛｯｶｸｱﾅﾂｷﾄﾒﾈｼﾞ M4X5	Set screw M4X5	2
123	MJ60A3273	ｵｻｴｳﾃﾞ A ﾋﾀﾞﾘ	Left side clamp frame A	1
124	MJ60A4273	ｵｻｴｳﾃﾞ B ﾋﾀﾞﾘ	Left side clamp frame B	1
125	MJ60B4601	ｼﾘﾝﾀﾞﾄﾘﾂｹｲﾀ ﾋﾀﾞﾘ	Left side cylinder plate	1
126	MA20A0650	ﾅｰﾙﾄﾞﾉﾌﾞ	Knurled knob	1
127	MB61A2477	ｽﾄｯﾊﾟ	Stopper	1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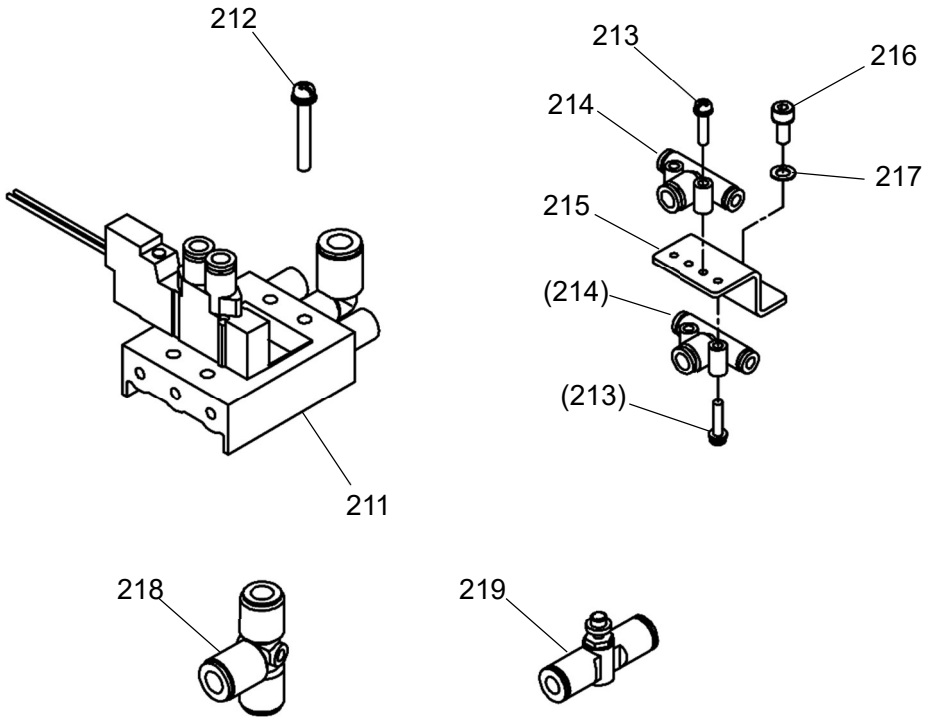
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Fig No.	部品コード Parts No.	品　　名	Description	数量 Amt. Req.
201	MJ60A0105	ｵｻｴ	Clamp	1
202	M90859004	SW-PW ﾌﾟﾗﾏｲﾅﾍﾞﾈｼﾞ M3X6	SW-PW pan screw M3X6	2
203	MS02B0257	ｵｻｴｲﾀ	Adapter	2
204	MS13A0572	ｺｲﾙﾊﾞﾈ	Spring	2
205	M90611060	ﾋﾟﾝ	Pin	2
206	M91073004	SW-PW ﾌﾟﾗﾏｲﾅﾍﾞﾈｼﾞ M4X16	SW-PW pan screw M4X16	2
207	MA45A2196	ｾｯﾄｲﾀ	Set plate	2
208	M91075004	SW-PW ﾌﾟﾗﾏｲﾅﾍﾞﾈｼﾞ M4X14	SW-PW pan screw M4X14	4
209	MA45A7426	ｻｻｴ	Supporter	2
210	MH60A0476	ｽﾍﾟｰｻ	Spacer	2
211	MJ40Q0599	ﾃﾞﾝｼﾞﾍﾞﾝｸﾐﾀﾃ	Solenoid valve complete	1
212	M91066004	SW-PW ﾌﾟﾗﾏｲﾅﾍﾞﾈｼﾞ M4X25	SW-PW pan screw M4X25	4
213	M90864004	SW-PW ﾌﾟﾗﾏｲﾅﾍﾞﾈｼﾞ M3X14	SW-PW pan screw M3X14	4
214	MJ60A3571	ｸﾀﾞｯｷﾞﾃ	T-type quick joint	2
215	MJ60A1420	ﾂｷﾞﾃｺﾃｲｲﾀ	Air fitting bracket	1
216	M94033017	ｾﾌﾃｨｿｹｯﾄ M4X12	Safety socket bolt M4X12	1
217	M90463050	ﾐｶﾞｷｻﾞｶﾞﾈ 4	Large washer 4	1
218	MJ60A1571	ﾁｰｽﾞ	T-shape connector	1
219	MA16A0495	ｽﾋﾟｰﾄﾞｺﾝﾄﾛｰﾗ	Speed controller	2

4. Setup procedures

CAUTION

Always make sure that the power is OFF before starting setting work.

4.1 Installation of the clamp device

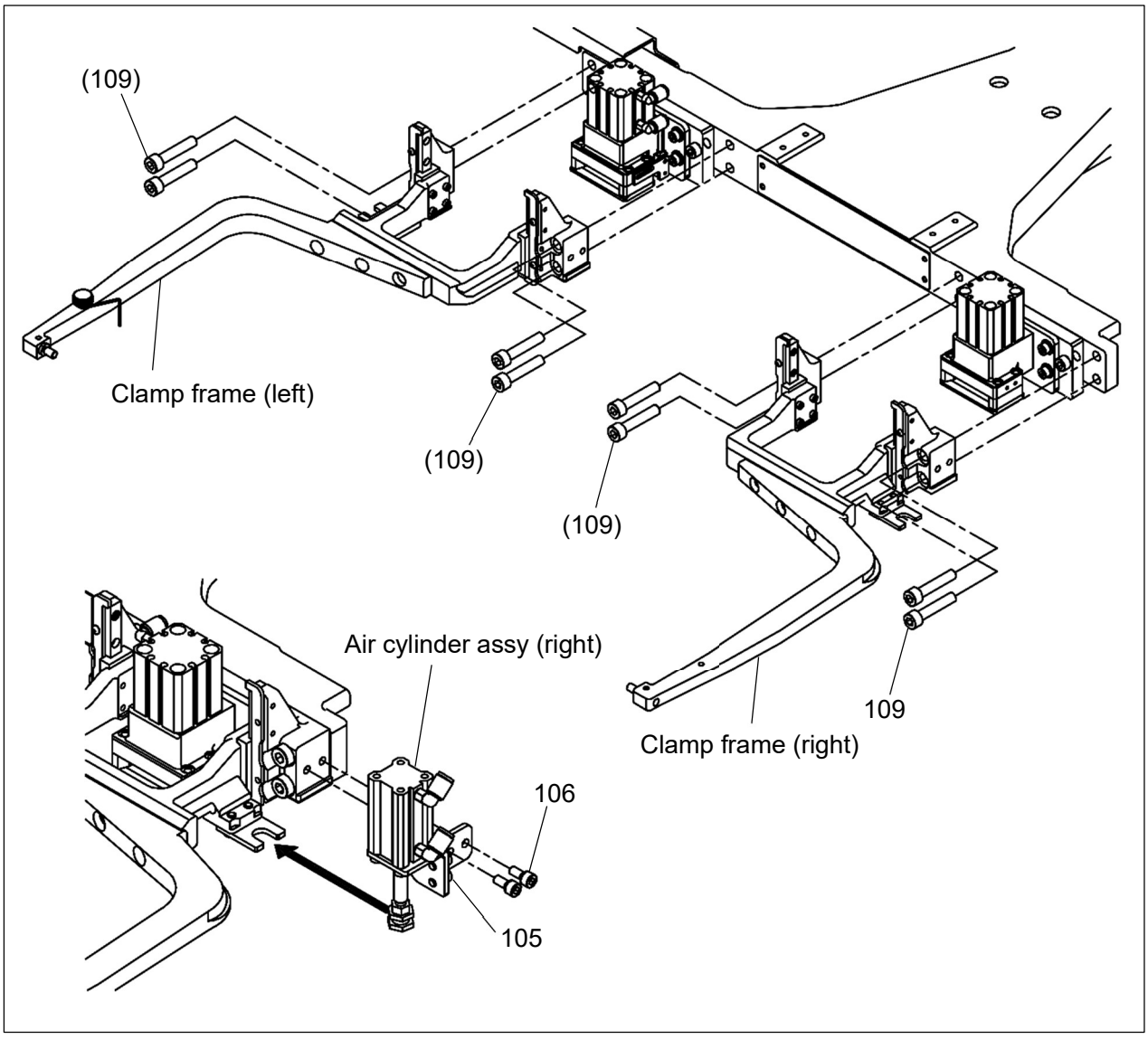
(1) Attach the clamp device to the clamp frame with eight screws (No.109).

(2) After installing the clamp device, check that it operates lightly by raising and lowering the right and left clamp frames. If the installation height of the clamp device differs from left to right, loosen the screws (No.109) before adjusting the position.

(3) Attach the air cylinder assembly (right) to the clamp device with two screws (No.106). After installation, check that the air cylinder operates smoothly by raising and lowering the clamp device.

MEMO If the air cylinder is running heavy, the air cylinder may be tilted against the vertical direction. In this case, loosen screws (No.106) and (No.105) before adjusting the tilt of the air cylinder.

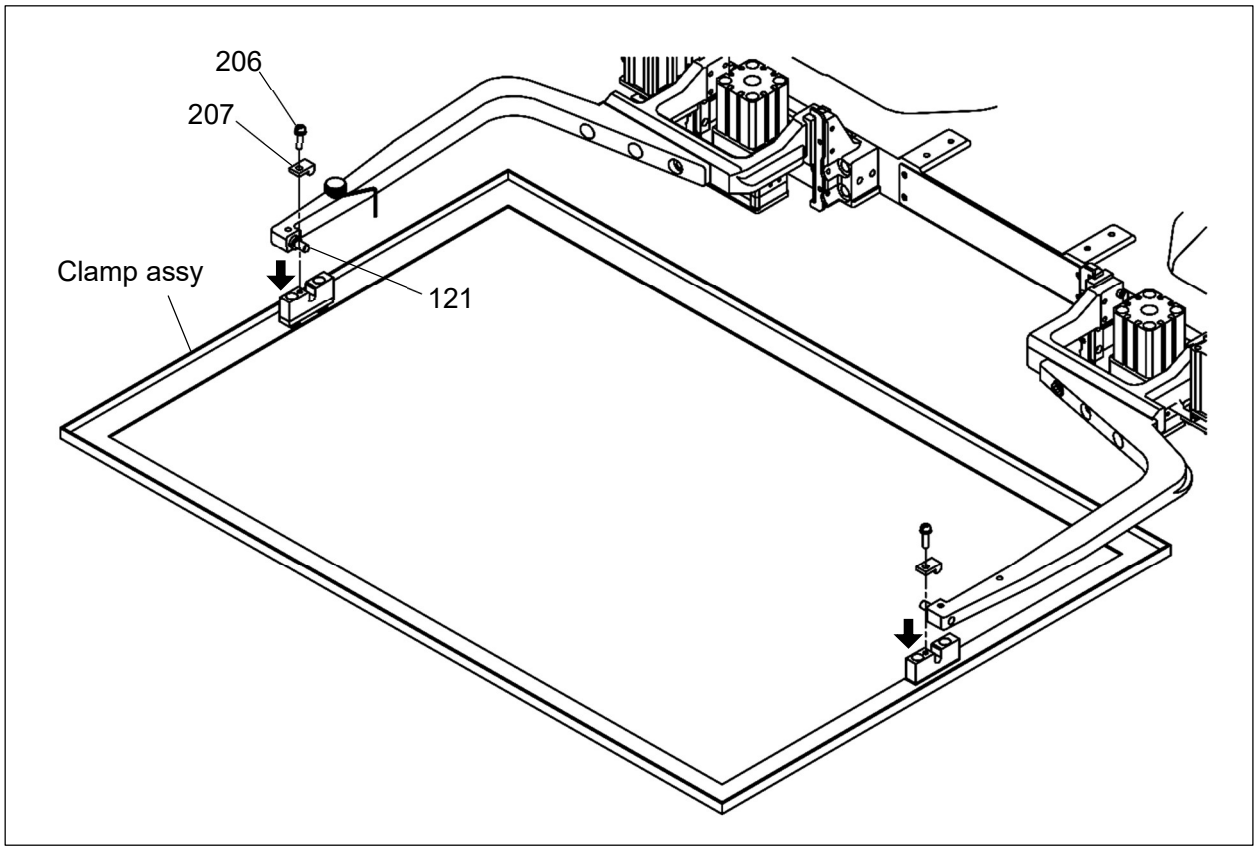
(4) Attach the air cylinder assembly (left) to the clamp device with two screws (No.106) in the same manner as described in the previous section.



4.2 Installation of the clamp

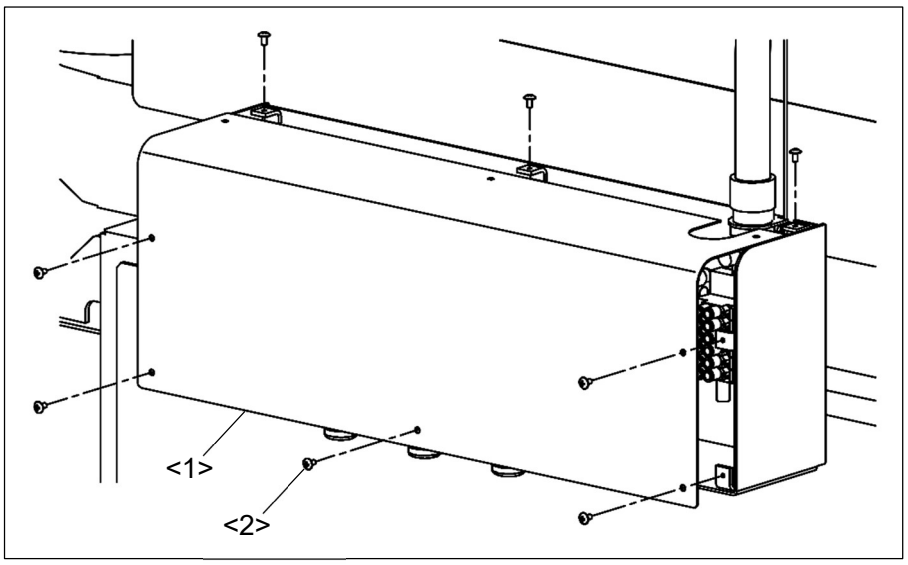
(1) Insert the U-groove portions on both sides of the clamp assembly into the clamp stud (No.121).

(2) To prevent the clamp stud (No.121) from coming off, attach the set plates (No.207) on both sides of the clamp assembly with SW-PW pan screws M4X16 (No.206).



4.3 Installation of the solenoid valve complete

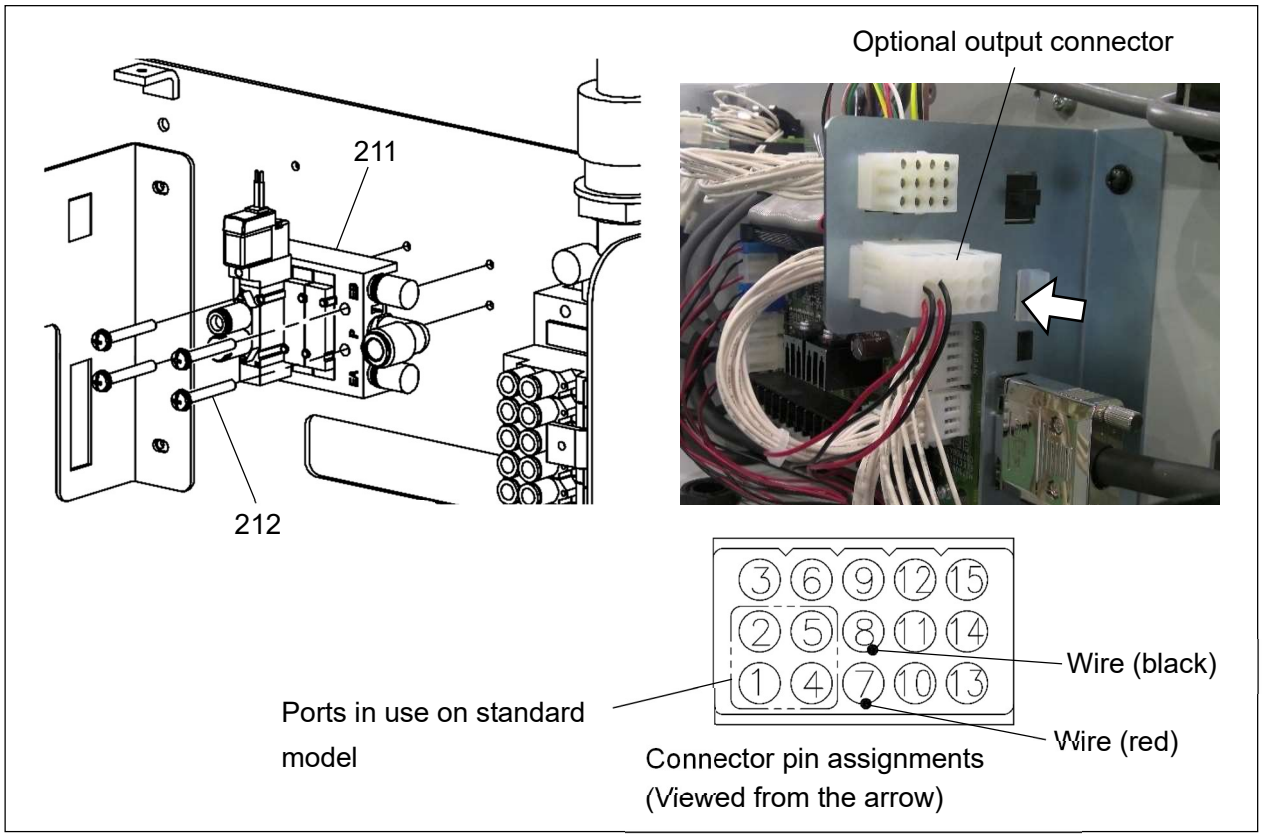
(1) Remove the eight M4 truss screws <2 > from the rear of the sewing machine and remove the print circuit board box cover <1>.



(2) Attach the solenoid valve complete (No.211) to the print circuit board box with four SW-PW pan screws M4X25 (No.212).

(3) Referring to the photo and diagram on the right of the figure below, attach the wire cables of the solenoid valve complete to the No. 7 and No. 8 ports of the optional output connector. Remove the connector on the wire side, check the color of the wire (red or black) and the location of the port, and then install the wire by inserting the terminals into the connector until the position where the wire terminals are fixed.

(4) After completing the wiring, check that the wires are securely fastened to the connectors, attach the optional output connector to the board-side connector.

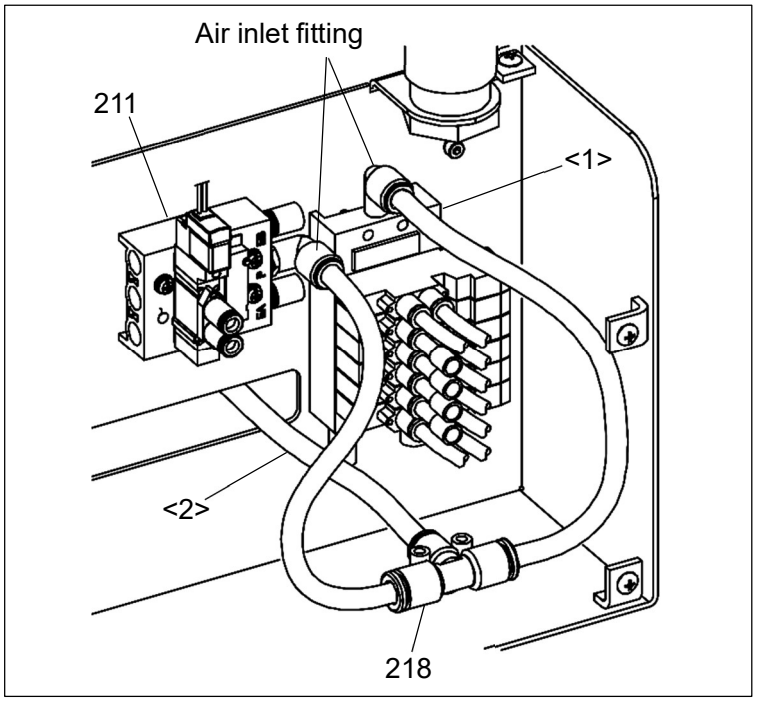


4.4 Connection of air piping

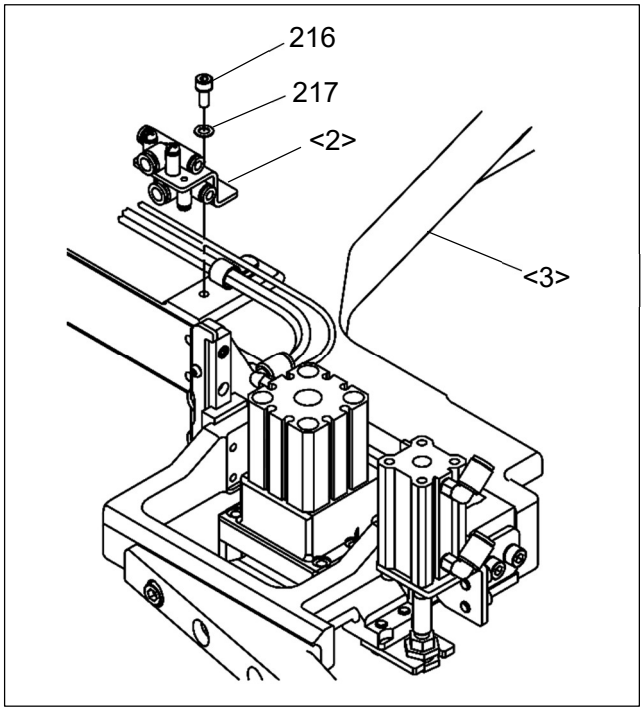
(1) Remove the φ8 air tube <2> on the air regulator side that is connected to the air inlet fitting of the existing solenoid valve <1>.

(2) Connect both ends of the φ8 air tube connected to the included T-shape connector (No.218) to the air inlet fitting of the existing solenoid valve <1> and the air inlet fitting of the solenoid valve (No.211) installed in the previous section [4.3], respectively.

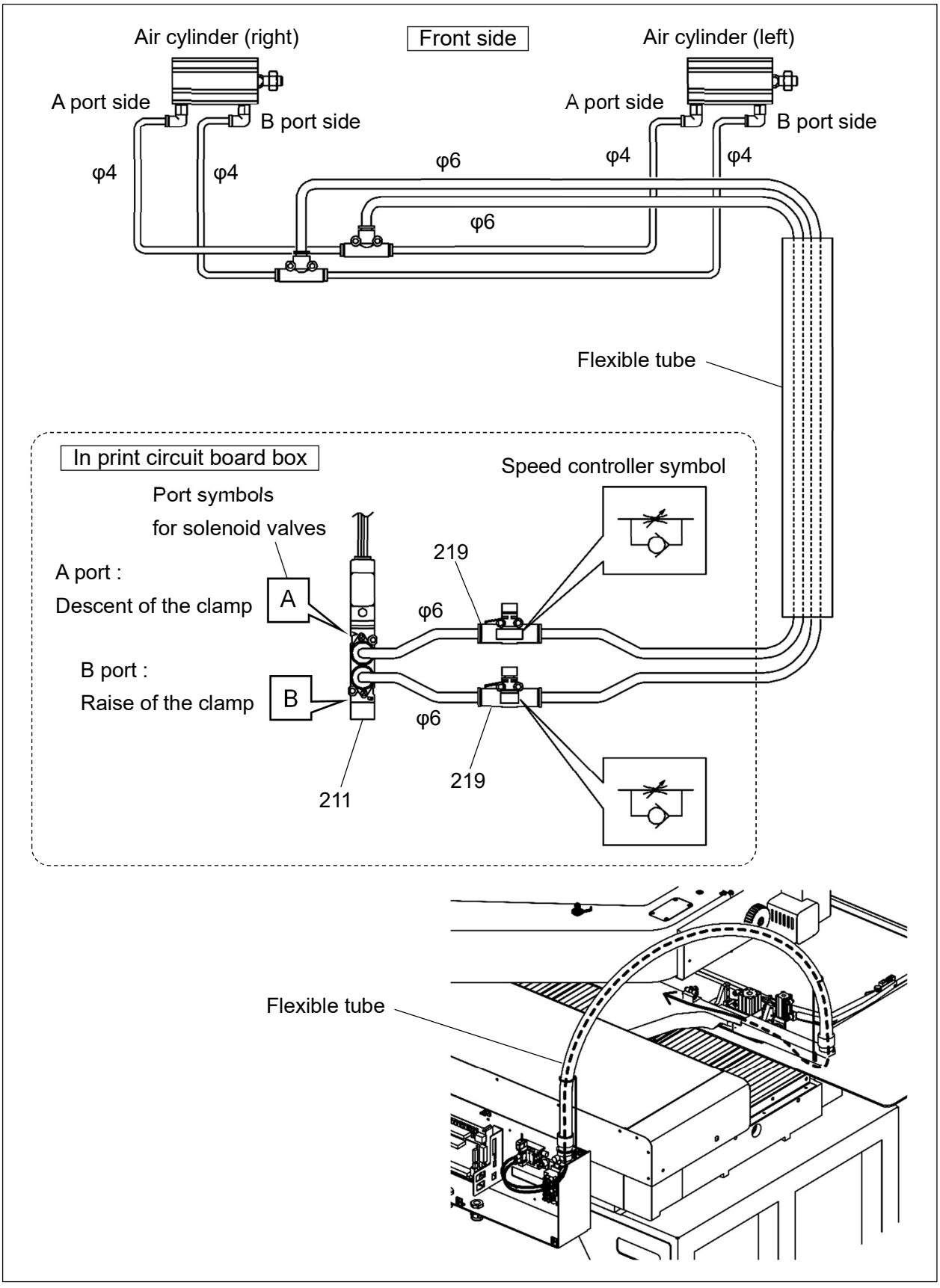
(3) Connect the φ8 air tube <2> on the air regulator side removed in (1) to the T-shape connector (No.218).



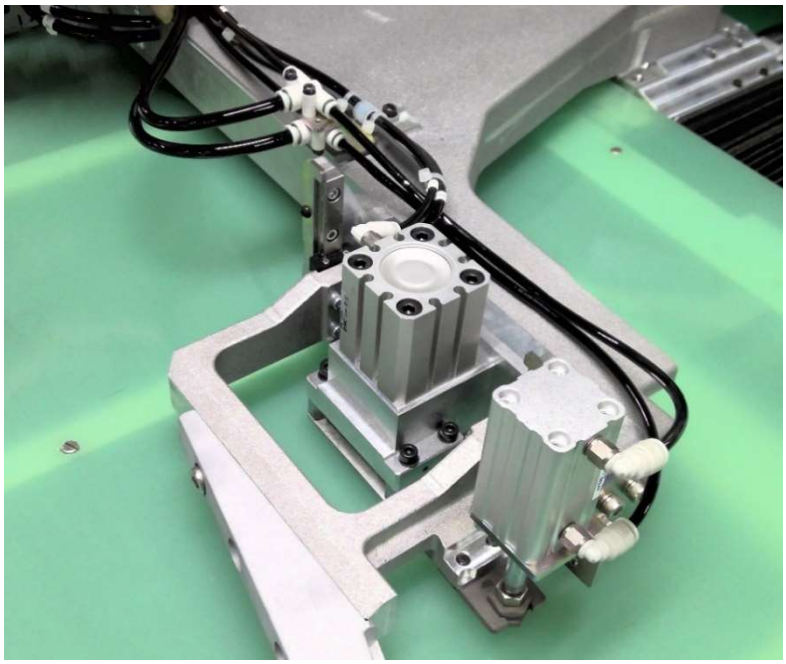
(4) Attach the air joint assembly <2> to the clamp frame <3> with the safety socket bolt M4x12 (No.216) and the large washer 4 (No.217) as shown in the figure below.



(5) Refer to the illustration below and pipe the air tube to the clamp device. Cut the supplied φ4 and φ6 air tubes to the required length. Install the speed controllers (No.219) near the solenoid valves. At this time, orient the speed controllers in the direction of the symbols shown below.



(6) Please refer to the photo below for piping air tubes around the clamp device.



4.5 Operation setting of the clamp device

(1) After completing the installation, wiring, and piping of the clamp device, turn on the sewing machine and make the operational settings for the clamp device. Refer to the following example for the operation settings.

MEMO For details, refer to [16] "Input/output setting mode" and [17] "Program mode" in the technical manual "Operation Panel".

(2) After completing the settings, check that the clamp device operates properly.

Setting example 1 : To lower the clamp in conjunction with the jig eject device.
(After the jig eject device is activated, the clamp is lowered after a 0.3 second delay.)

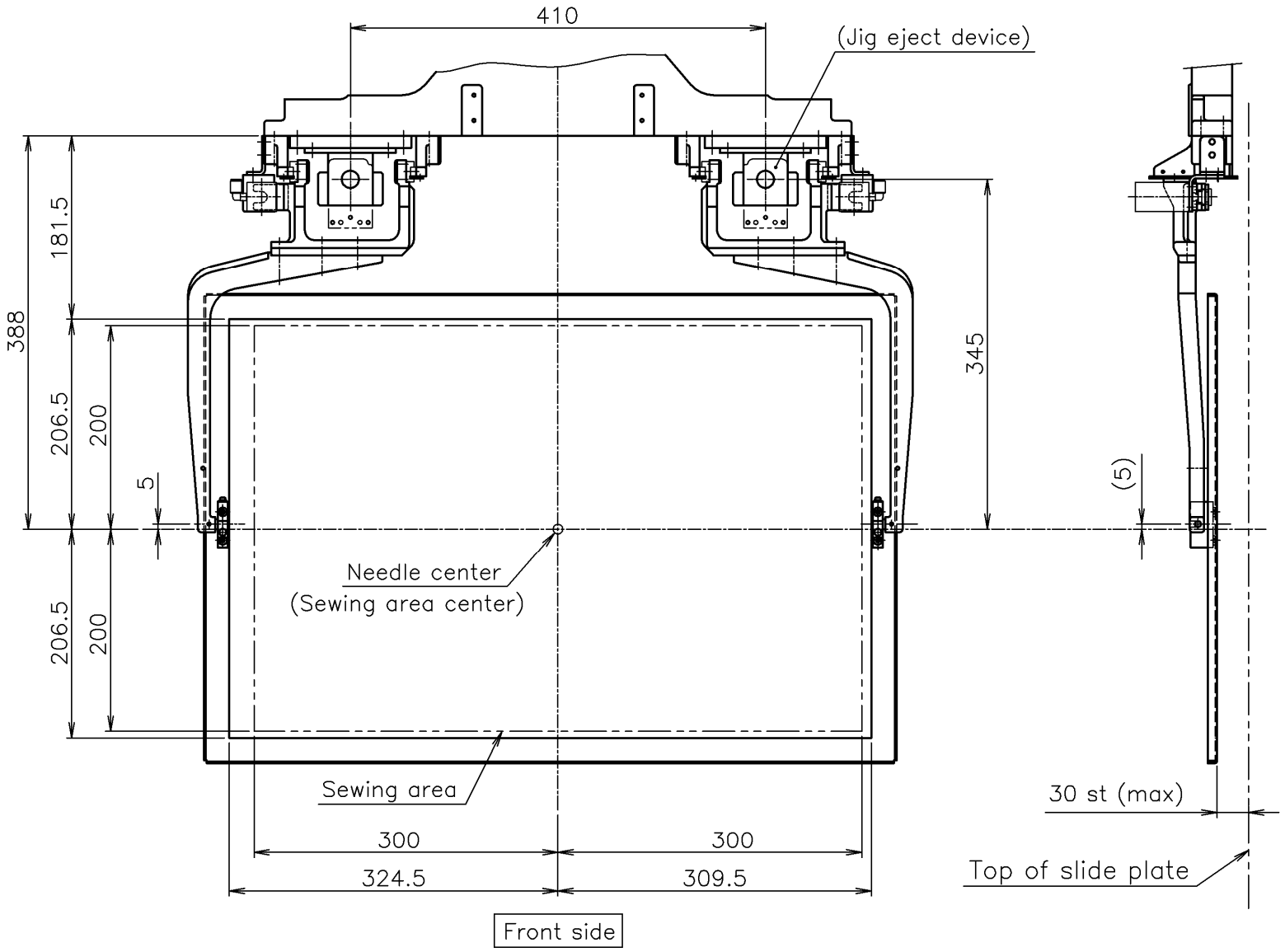
Setting example 2 : To operate the jig eject device and the clamp push down separately by pedal operation.

Mode	Function		Factory setting	Setting example 1	Setting example 2
Input/output setting	I 2	Clamp input 1	I F1	I F1	FSP
	O9	Option output	NO	OF2	OF2
Clamp (Program mode)	WHY	Priority of clamp mode	OF	OF	ON
	FSR	All cancel at over-step movement	OF	OF	ON
	2A	Clamp 2 of output on delay setting	0	※300	0
	FN	Setting for valid number of clamp	1	2	2
	CF	Clamp synchronize ON/OFF setting	OF	ON	OF

※mark : The setting value is arbitrary.

APPENDIX

The positional relationship between the sewing area and the clamp device



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