



INDUSTRIAL SEWING MACHINE
Attachment

MODEL

MP-G10-AO


TECHNICAL MANUAL

Pneumatic Type Clamp

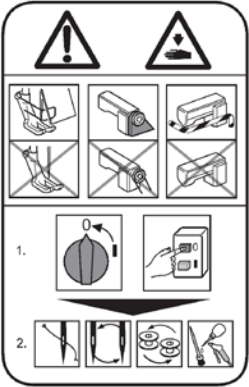


FOR SAFE USE

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

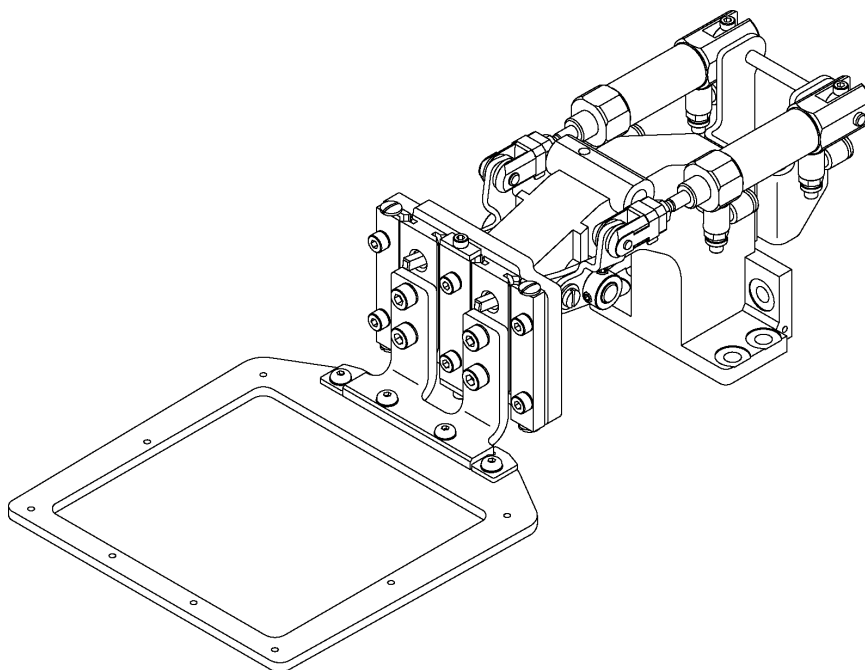
	CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage. Note that CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.
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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. <ul style="list-style-type: none">● 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 is used to increase or decrease the force applied on the material to be stitched, and to adjust the pressing speed. This clamp is effective if the material to be stitched is heavy and the magnetic type clamp is too weak to hold the material, or if the material is soft and needs to be gently pressed.



2. Specifications

Name		: MP-G10-AO (pneumatic type clamp)
Applicable model:		: PLK-G1010
Sewing area		: 100 (X) mm X 100 (Y) mm (same as PLK-1010)
Clamp UP position		: 30 mm
Pressing operation		: Use foot switch (2-pedal) normally provided with the electronic sewing machine.
Drive source air pressure	Primary side	: 0.5 MPa (5 kg/cm ²) or more
	Secondary side:	: 0.4 MPa (4 kg/cm ²)



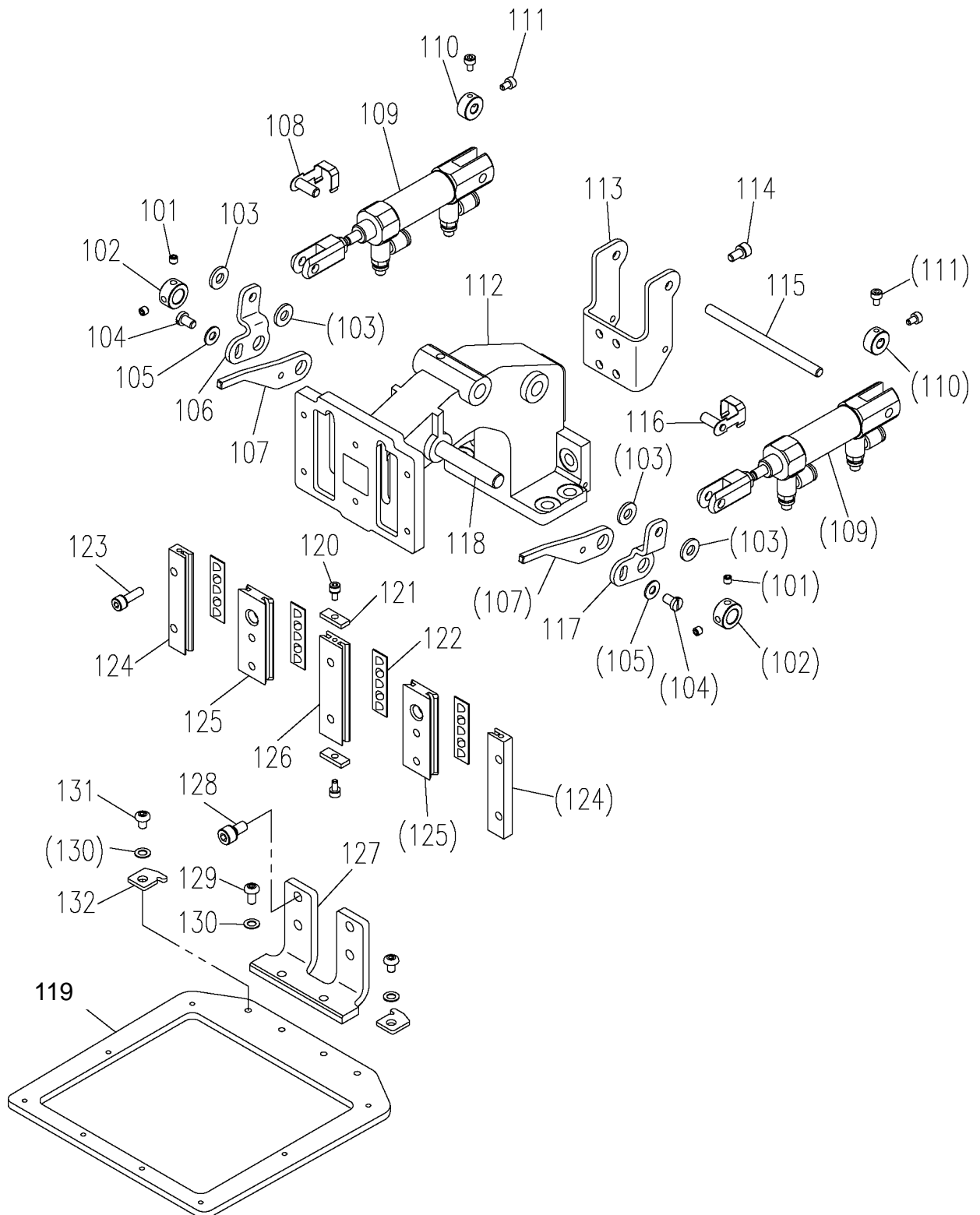
CAUTION

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/cm²).

3. Configuration

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

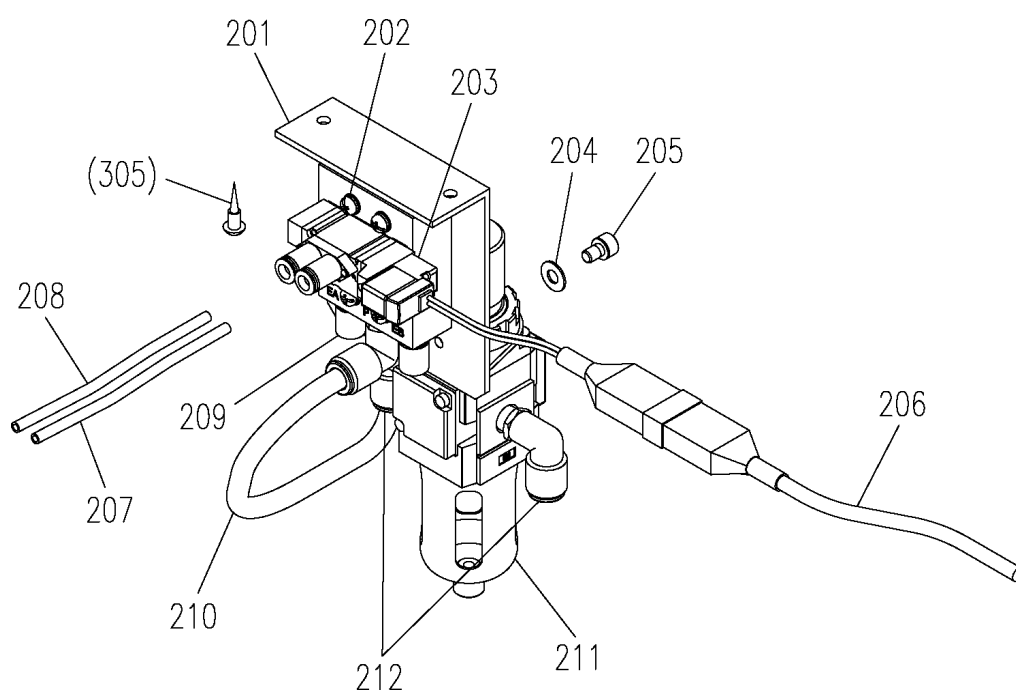
3.1 Clamp mechanism



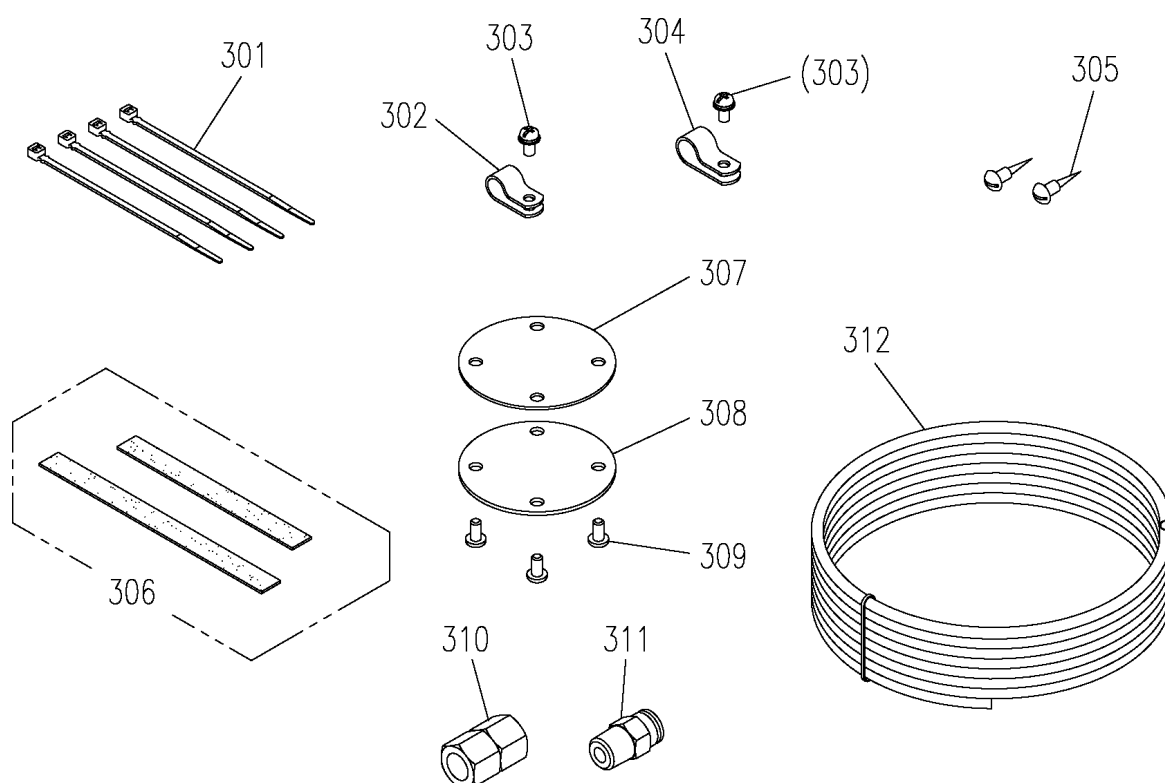
3.1 Clamp mechanism (Parts list)

Fig No.	部品コード Parts No.	品 名	Description	数量 Amt. Req.
101	M91055020	ロツカクアナツキトメネジ [°] M4X4	Screw M4X4	4
102	MH10A0352	カラー	Collar	2
103	M90519050	ナイロンワッシャ	Nylon washer	4
104	M91109002	ヒラネジ [°] 11/64(40)X7	Screw 11/64(40)X7	2
105	M90421050	ザ [°] ガネ 4	Washer 4	2
106	MH10K0950	レバ [°] ー(S2L)	Lever (S2L)	1
107	MH10K1950	レバ [°] ー(S1)	Lever (S1)	2
108	M90538060	ナックルピン(L)	Knuckle pin (L)	1
109	ME10P0434	エアシリンダ [°]	Air cylinder	2
110	ME10P0352	カラー	Collar	2
111	M93004021	ロツカクアナツキボ [°] ルト M3X5	Socket bolt M3X5	4
112	MH10A1308	オサエダ [°] イ	Clamp bracket	1
113	MH10K0601	シリンダ [°] トリツケイタ	Cylinder bracket	1
114	M94002017	セフティソケット M4X8	Safety socket bolt M4X8	4
115	M90555060	ピン	Pin	1
116	M90548060	ナックルピン(R)	Knuckle pin (R)	1
117	MH10K2950	レバ [°] ー(S2R)	Lever (S2R)	1
118	M90822060	ピン	Pin	1
119	MH10A0105	オサエ	Clamp frame	1
120	M94003017	セフティソケット M3X6	Safety socket bolt M3X6	2
121	MH10A4477	ストッパ [°]	Stopper	2
122	M94008070	ローラリテーナ	Roller retainer	4
123	M94019017	セフティソケット M4X14	Safety socket bolt M4X14	6
124	MH10A6957	オサエコテイレース	Fixed race	2
125	MH10A3957	オサエイト [°] ウレース	Movable race	2
126	MH10A4957	オサエコテイレース	Fixed race	1
127	MH10A3601	オサエトリツケイタ	Clamp foot	1
128	M95005017	セフティソケット M5X10	Safety socket bolt M5X10	4
129	M94005022	ロツカクアナツキボ [°] タンボ [°] ルト M4X8	Bolt M4X8	2
130	M90422050	コザ [°] ガネ 4	Washer 4	4
131	M94041021	ロツカクアナツキボ [°] タンボ [°] ルト M4X6	Bolt M4X6	2
132	MH10A0196	イチギ [°] メイタ	Guide plate	2

3.2 Pneumatic pressure control unit



3.3 Accessories



3.2 Pneumatic pressure control unit (Parts list)

Fig No.	部品コード Parts No.	品 名	Description	数量 Amt. Req.
201	MH25A1601	デソジベントリツケイタ	Valve mounting plate	1
202	M91066004	SW-PW プラマイナベネジ M4X25	Screw M4X25	4
203	ME10X0599	デソジベソクミタテ	Solenoid valve assy	1
204	M90511050	ザガネ 5	Washer 5	2
205	M95003017	セフティソケット M5X8	Safety socket bolt M5X8	2
206	MB10B0508	セツゾクデソセンクミタテ	Cable assy	1
207	ME10X1567	エアチューブクミタテ(A)	Air tube assy (A)	1
208	ME10X0567	エアチューブクミタテ(B)	Air tube assy (B)	1
209	M91035089	サイレンサ	Muffler	2
210	MB20P1567	エアチューブ	Air tube	1
211	ME40A0963	フィルタレギュレータ	Filter regulator	1
212	MA20A8571	L ガタワンタッチツギテ	L-type quick joint	3

3.3 Accessories (Parts list)

Fig No.	部品コード Parts No.	品 名	Description	数量 Amt. Req.
301	MF06A1620	ケツソクバンド	Cable tie	4
302	M94007099	ナイロンクリップ 6	Nylon clip 6	1
303	M91054004	SW-PW プラマイナベネジ M4X8	Screw M4X8	2
304	MB60A1620	ナイロンクリップ 8	Nylon clip 8	1
305	M90409041	マルモクネジ 4.5X20	Wooden screw 4.5X20	2
306	MH10C0691	ハッキンセット	Clamp pad	1
307	ME10P0691	ハッキン	Pad	1
308	MB10X0742	フタ	Cap	1
309	M94005022	ロツカクアナツキボタンホルト M4X8	Bolt M4X8	4
310	M91010089	ロツカクソケット	Socket	1
311	MA30A0571	ワンタッチツギテ	Quick joint	1
312	MS06A0567	エアチューブ	Air tube	1

4. Setup procedures



CAUTION

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

4.1 Installing the clamp drive mechanism

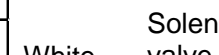
- (1) Remove the four screws on the Y axis movement race side fixing the clamp base (Fig.No.112) and the two screws on the axis support side, and remove the magnetic clamp mechanism mounted as a standard on the sewing machine.
- (2) Using the screws removed above, install this pneumatic clamp mechanism following the above step in reverse. Make sure that the clamp is not inclined at this time.
- (3) If there is no need to reinstall the magnetic clamp mounted as a standard on the sewing machine after changing to the pneumatic type clamp, it is recommended to remove the drive mechanism parts in the sewing machine head.
To remove these parts, refer to the part catalog P-246 for the PLK-G1010 sewing machine unit, and remove the parts (except No.120) in page 14 of the catalog. Use the parts Fig.No.307, 308, and 309 which enclosed with this attachment as a cover.

4.2 Installing the pneumatic pressure control related parts

- (1) The regulator and solenoid valve assembly configured of Fig.No.201, etc., are fixed to the bottom of the sewing machine table with the enclosed Fig.No.305 wood screws (two screws).
- (2) Align the piping symbols of the Fig.No.207 and 208 air tubes ($\phi 4$) with ports A to B on the pneumatic clamp's Fig.No.109 air cylinder, and insert the tubes.
- (3) Pass the air tubes through the notched section on the side of the sewing machine unit's motor cover, and lead the tubes to the bottom of the table from the square hole on the table.
- (4) Align the air tubes led out above with the ports A to B of the solenoid valve installed in step (1), and insert the tubes.
- (5) Bind the air tubes appropriately with the enclosed Fig.No.301 Cable ties.

4.3 Connecting the switches and cables







- (1) Remove the cover for the connector panel on the back of the sewing machine.
- (2) Disconnect the cable connected to CON13 (FU) on the solenoid PCB. This cable is not used after this attachment is mounted. Fix it where it will not obstruct the other electric parts.
- (3) Lead out the Fig.No.206 cables connected to the solenoid valve from the slot on the back of the sewing machine table, pass through the cord bushing on the connector panel, and lead in to the solenoid PCB side.
- (4) Insert the Fig.No.206 cable connector to CON13 (FU) on the PCB from where the cable was disconnected above.
- (5) This completes the connection of the wiring. Check the connection with the following table, and then securely install the cover removed from the connector panel.

		Signal name	Connection		
Output	Fig.No.206	+24V	Sewing machine head solenoid PCB		Solenoid valve
			CON13 (FU) - ②		
		Work holder ouput 1	Sewing machine head solenoid PCB		
		(O4)	CON13 (FU) - ①		

4.4 Installing the system software

When this sewing machine is already used, installation explained by this 4.4 clause is not necessary.

(1) Installing the System Software

- ① While holding down the [F] key on the front panel of the control box, turn the machine power ON.
(Keep pushing [F] key until red LED on the front panel is turned on.)
- ② [Model and language set function] screen is displayed.
- ③ Press the  . Select the **English** on the language set function screen then, press the  .
- ④ Press the  . Select the **1010** on the model set function screen then, press the  .
- ⑤ Press the  to determine the settings.
- ⑥ After [INITIALIZES SET VALUE] message is displayed, press the  .



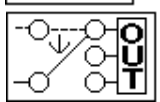
This completes installing the system software. Turn off the power switch once.

4.5 Setting change



CAUTION

If the sewing machine is operated with the magnetic clamp settings, faults could occur.
Always install the system software for the pneumatic type clamp.

- (1) Press the  on the standard screen to open the MENU mode.
- (2) Press the  in the menu icon. The Input/Output setting mode screen is displayed.
- (3) Press the  on the Input/Output setting mode.

(4) Enter a password


Please ask the dealer about a password.

(5) Press the inside of the frame under the 4 .

(A display in the frame is OF1 in a standard setting. If it is the other display, change to OF1.)


* Refer to the clause Output confirmation (Custom output) [of 2.Explanation of input/output setting mode of [14]Input/output setting mode] of the technical manual "Operation Panel" for the change method to OF1.

(6) Press the  .


(7) Press the  .

(8) Press the 2ms ON, 4ms OFF, 33% Duty several times.

And make display 4ms ON, 2ms OFF, 66% Duty .

(9) Press the  .

(10) Press the  two times.

(11) Press the  and return to standard screen.


The settings will be changed to the table shown below by the above operation.

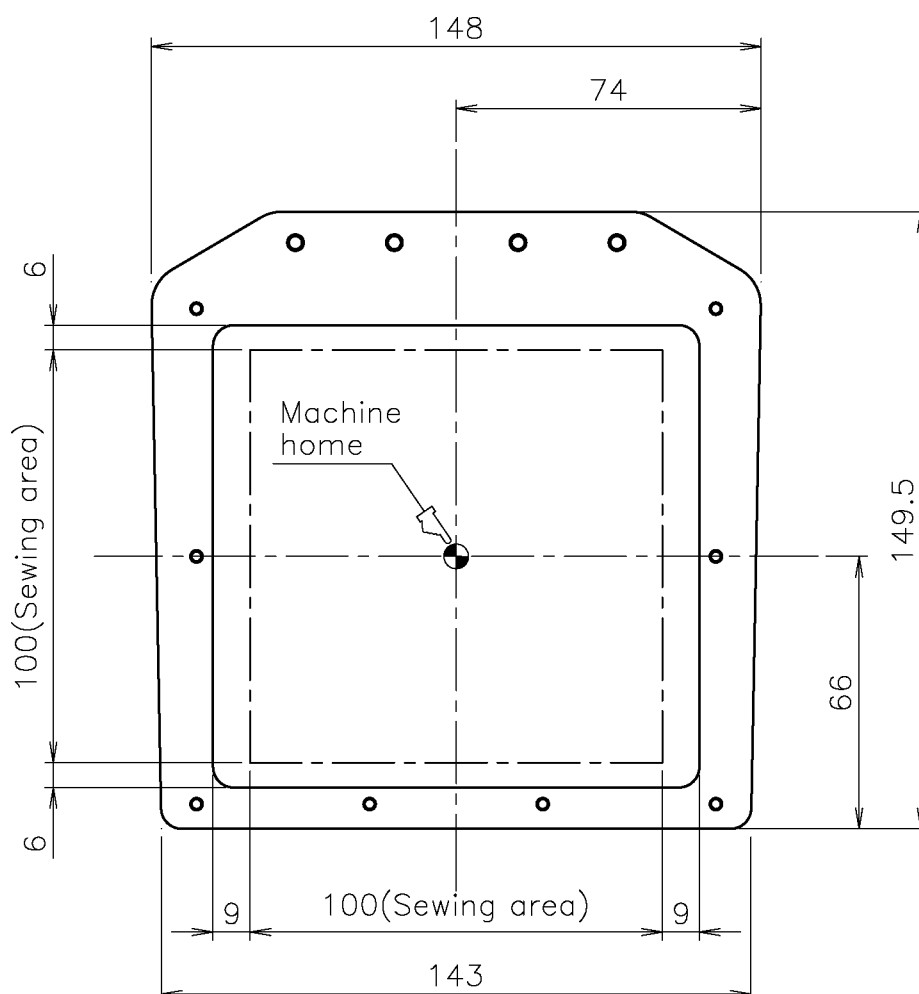
Mode	Input/output setting
Function name	O4
Pneumatic type clamp	4mS=ON 2mS=OFF 66%
Factory setting	2mS=ON 4mS=OFF 33%
Remarks	Set this when changing from the magnetic clamp to the pneumatic clamp. [chopping duty setting of details screen(2)]

For details, refer to the clause [14]Input/output setting mode of the technical manual "Operation Panel".

5. Operation

5.1 Confirming operation

- (1) Turn the sewing machine power switch ON.
- (2) Confirm that the work clamp lower when the foot switch (2-pedal) [Black] side is turned ON, and rise when the switch is turned ON again.
- (3) Lower the work clamp, and press  on the operation panel. Return to home will start.
- (4) Next, check that the positional relation of the clamp and needle hole center is at the scale shown in the drawing. If the positions are deviated, refer to the PLK-G1010 Sewing Machine Head version instruction manual and adjust the home.



5.2 Stitching test

- (1) Select the stitching pattern. (Refer to the PLK-G1010 Sewing Machine Head version instruction manual.)
- (2) Press the [Black] side on the 2-pedal foot switch, and lower the work clamp. Next, press the [Gray] side on the foot switch to rotate the sewing machine and start stitching. (Stitching will not start unless the work clamp is lowered.)
- (3) When stitching is completed, the sewing machine will automatically return to home, and the clamp will rise.

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