

JANOME ELECTRO PRESS

JP-104	JP-204	JP-504	JP-1004
JP-1504	JP-3004	JP-5004	
JPH-104	JPH-204	JPH-504	JPH-1004
JPH-1504	JPH-3004	JPH-5004	
JPU-104	JPU-204	JPU-504	JPU-1004
JPU-1504	JPU-3004	JPU-5004	JPU-8004

Operation Manual

<Maintenance>

“For Qualified Maintenance Persons ONLY”

Thank you for purchasing the Electro Press.

*Read this manual thoroughly in order to properly use this machine.
Be sure to read “For Your Safety” before you use the machine. It will protect you from possible danger during operation.

*After having read this manual, keep it in a handy place so that you or the operator can refer to it whenever necessary.

JANOME

FOR YOUR SAFETY

Safety Precautions

The precautions stated in this manual are provided for the customer to make the best use of this product safely, and to provide preventive measures against injury to the customer or damage to property.

• • • • • **Be sure to follow the instructions** • • • • •

Various symbols are used in this manual. Please read the following explanations to understand what each symbol stands for.

Symbols indicating the Degree of Damage or Danger

The following symbols indicate the degree of damage or danger which may be incurred if these notes are not heeded.

	Warnings These “Warnings” indicate the possibility of death or serious injury.
	Cautions These “Cautions” indicate the possibility of accidental injury or damage to property.

Symbols indicating the type of Danger and Preventive Measures

The following symbols indicate the type of safety measure that should be taken.

	Indicates the type of safety measure that should be taken.
	Take care. (General caution)
	Indicates prohibition.
	Never do this. (general prohibition)
	Do not disassemble, modify or repair.
	Do not touch. (contact prohibition)
	Indicates necessity
	Be sure to follow instructions.
	Be sure to unplug the power supply from wall outlet.
	Be sure to check grounding.

FOR YOUR SAFETY

Warnings



Do not leave the unit plugged in (power cord and connectors) when it is not in use for long periods of time. Dust can cause fire.

Be sure to shut off the power supply before removing the power cord.



Regularly replace the built-in battery (optional) in the body or control box. It is preferable to replace it every 3 years.

Failure to do so may cause malfunction or defect.



Keep the emergency stop switch within reach of the operator while teaching and while running the machine.

It is dangerous if the machine cannot be stopped quickly and safely.



Regularly check that the I/O-S circuits and emergency stop switch work properly.

This is necessary so that the machine can be stopped quickly and safely in order to avoid danger.



Check regularly that the mounting screws are always firmly tightened.

Loose screws may cause injury or damage.



Power the unit only with the rated voltage.

Excessive voltage can cause fire or malfunction of the unit.



Do not sprinkle water or oil on the unit, control box, or its cable.

Contact with water can cause electric shock, fire, or malfunction of the unit. IP Protection Rating is IP40.



A person entering the machine's operation area may be injured.

Put up a "No Entry" or "No Operating" warning sign in a clearly visible position near the machine.

FOR YOUR SAFETY

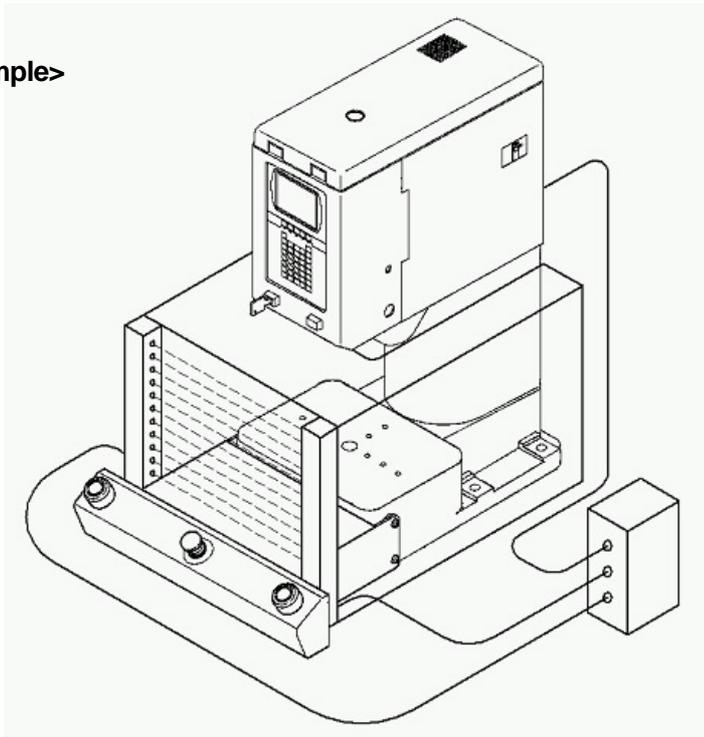
INSTALLATION

Warnings



Install an interlock as a safeguard that triggers an emergency stop when it is activated using the I/O-S connector included in the package.

<Example>



Use protective wear (helmet, protective gloves, protective glasses and protective footwear) when installing the machine.



Place the machine in a well-ventilated area for the health and safety of the operator.



Place the machine on a suitable flat surface that can support its weight and do not cover the cooling fan vent on the top of the stand-alone and head type models.

An insufficient or unstable area can cause the machine to fall, overturn, breakdown or overheat.

FOR YOUR SAFETY

Warnings



Confirm that the unit is properly grounded.

A power supply earth should be connected complying with Type D grounding.
(under 100 Ω of resistance.)

Insufficient grounding can cause electric shock, fire or malfunction.



Plug the power cord into the wall outlet firmly.

Incomplete insertion into the wall outlet heats the plug and can cause fire.
Check that the plug is not covered with dust.

Be sure to shut off the power supply before connecting the power cord.



Do not attempt to disassemble or modify the machine.

Disassembly or modification may cause electric shock, fire or malfunction.



Be sure to use within the voltage range indicated on the unit.

Failure to do so may cause electric shock or fire.



Do not use the unit near inflammable or corrosive gas.

If leaked gas accumulates around the unit, it can cause fire.

IP Protection Rating is IP40.



Turn off the unit before inserting and removing cables.

Failure to do so may result in electric shock, fire, or malfunction of the unit.

IP Protection Rating is "IP40."



Use the machine in an environment between 0 to 40 degrees centigrade with a humidity of 20 to 95 percent without condensation.

Use outside these conditions may result in malfunction.

IP Protection Rating is "IP40."



Keep the emergency stop switch within reach of the operator while teaching and running the machine.

It is dangerous if the machine cannot be stopped quickly and safely.

FOR YOUR SAFETY

Warnings



Use the machine in an environment where no electric noise is present.



Attach an eyebolt and use a crane or other equipment to transport the machine.

Failure to do so may result in malfunction or defect.



Do not bump or jar the machine while it is being transported or installed.

This can cause defects.



Use the machine in an environment where it is not exposed to direct sunlight.

Direct sunlight may cause malfunction or defect.



Be sure to confirm that jigs such as the electric screwdriver unit, etc. are properly connected.

Failure to do so may result in injury or defect.



Be sure to check the wiring to the main unit.

Improper wiring may cause malfunction or defect.



Be sure to shut off the power supply before plugging in the power cord.



Place the control box on a flat surface more than 80 cm above the floor so that it is easier to operate it.



The installation mount should be steel. **For the stand-alone type, it should be able to support the machine's weight. For the head and unit types, it needs to support the machine's weight and pressing capacity.**



Use the machine in an environment that is not dusty or damp.

Dust and dampness may cause failure or malfunction.

FOR YOUR SAFETY

WORKING ENVIRONMENT

Warnings



When you lubricate or inspect the unit, unplug the power cord from the outlet.

Failure to do so may result in electric shock or injury.

Be sure to shut off the power supply before removing the power cord.



During operation, always have the emergency stop switch within the operator's reach.

For the operator's safety, the emergency stop switch is necessary to make a quick and safe stop in an emergency.



Always be aware of the machine's movement, even in the teaching mode.

Special attention will protect the operator from injury.

FOR YOUR SAFETY

DURING OPERATION

Warnings



When starting the machine, check that **no object will interfere with the machine's operation.**



Under no circumstances should you go inside the working area or place your hands or head inside the working area while the machine is operating.



If anything unusual (e.g. a burning smell) occurs, stop operation and unplug the cable immediately. Contact your dealer or the office listed on the last page of this manual.

Continuous use without repair can cause electric shock, fire, or breakdown of the unit.



During teaching, tests, and actual operation, always have the Emergency stop switch within the operator's reach.

For the operator's safety, the emergency stop switch is necessary to make a quick and safe stop in an emergency.

PREFACE

The operation manual for the JANOME Electro Press consists of the following parts. **“For Your Safety”** is also provided so that the customer can make the best use of this product safely. This section includes preventive measures that can be taken against injury to the customer or damage to property. Please be sure to read “For Your Safety” before using this product.

Setup	This explains how to set up the Electro Press. * For those who have received training in Electro Press safety and installation.
Maintenance	This explains Electro Press maintenance. * For those who have received training in Electro Press safety and installation.
Teaching and Operation	Lists part names and data structure and provides the basic knowledge necessary to operate the Electro Press.
Operation	This explains how to operate the Electro Press.
Specifications	This provides comprehensive specifications, including mechanical and electrical requirements.

Note: The product specifications in these manuals may differ from those of the machine you have received due to product upgrades.

Please be sure to follow the instructions described in these manuals. Proper use of the robot will ensure continued functionality and high performance.

These manuals are based on the standard application. Menu items may vary depending on the model.



Be sure to shut off the power supply before plugging in the power cord.



BE SURE TO MAKE A PROPER GROUNDING WHEN YOU INSTALL THE MACHINE.



Be sure to save data whenever it is added or modified. **Otherwise, changes will not be saved if the power to the robot is cut off.**

CONTENTS

FOR YOUR SAFETY _____	i
PREFACE _____	viii
CONTENTS _____	ix
1. CHECKING BEFORE ACTIVATION _____	1
2. TEACHING DATA SAVE/BACKUP _____	2
3. MAINTENANCE _____	4
3-1 Greasing _____	4
3-2 Full Inspection _____	4
4. ADJUSTMENT _____	5
4-1 Adjustable Value List _____	5
4-2 Load Calibration _____	7
4-2-1 Load Calibration Amount Offset (Zero Reset) Function _____	8
4-2-2 Load Calibration Function _____	10
4-2-3 Load Calibration Function (Number) _____	10
4-2-4 Load Calibration Function _____	12
4-3 Absolute Position Adjustment _____	16
5. HOW TO INSTALL PRESS SYSTEM SOFTWARE _____	21
6. TROUBLE SHOOTING _____	22
6-1 Self-Diagnosis _____	22
6-2 Error Number List _____	23
6-3 Failure Diagnosis _____	24
6-3-1 Diagnostic Mode _____	26

1. CHECKING BEFORE ACTIVATION



Check the following items before you register data or operate the machine.

Obstacles

Check that there are no obstacles in or around the Electro Press working area.

Emergency Stop Function

Check that the I/O-S circuit (Interlock) and emergency stop switch work properly.

Without checking this you may not be able to stop the machine quickly and safely.

The Electro Press will stop running if the interlock comes ON or you press the emergency stop switch.

<How to release the emergency stop switch>

Turn the pressed in emergency stop switch in a clockwise direction to release the emergency stop.

2. TEACHING DATA SAVE/BACKUP

[Save]

All teaching data is temporarily saved in the Electro Press. However, if the power to the Electro Press is turned OFF, **it will disappear**. Be sure to save teaching data whenever it is added or modified.

Press the "SAVE" key.



Caution

Be sure to save data whenever it is added or modified. **Otherwise, changes will not be saved if the power to the robot is cut off.**



Caution

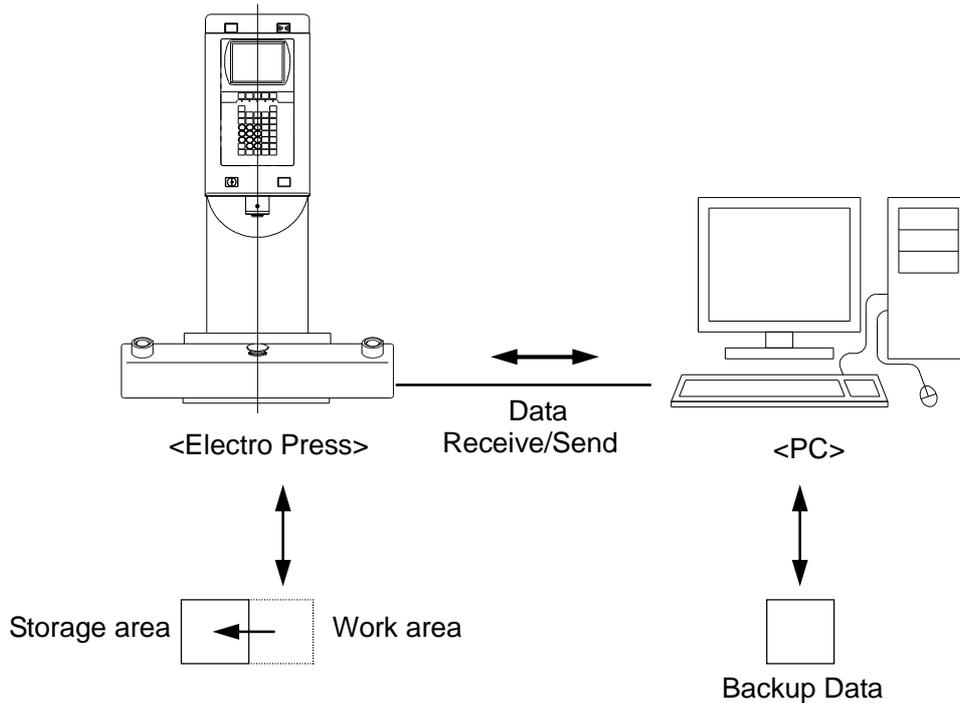
Do not turn the power to the Electro Press OFF during the save operation.
If the machine stops while saving data due to emergency stop, the save operation will be canceled. To re-save the data, release the emergency stop, return the ram to the mechanical home position so that the LCD displays the base screen and press the SAVE key.

[Back Up]

Back up data in case of accident.

To create backup data, start up the program “JP Designer Limited Edition” included in the Operation Manual CD-ROM. Retrieve data from the machine and save the retrieved data in a file.

The teaching data is sent from machine to PC as a unit. You cannot send a single program on it's own.



The machine has a data storage area and a work area. When you start up the machine, the teaching data in the storage area will be copied to the work area. The copied data is used for running and teaching. The data in the work area will be deleted when the power to the machine is turned OFF.

When data is retrieved from the machine it comes from the work area. When data is sent to the machine from the PC, it is saved in the storage area automatically.

- If you are using “JP Designer”, the same operation can also be executed by selecting [Receive Data] from the [Communication] pull-down menu.

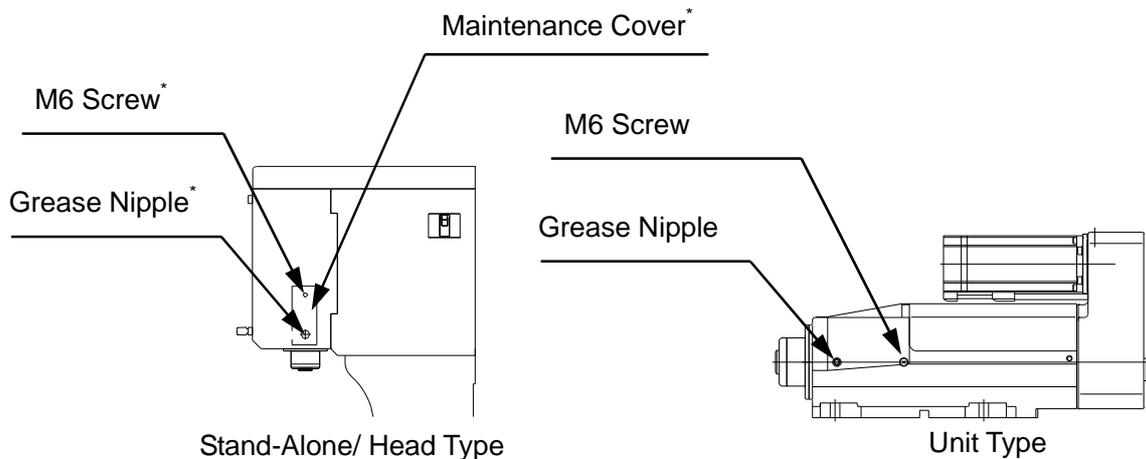
3. MAINTENANCE

3-1 Greasing



For smooth operation and long-life, grease the ram of the Electro Press every one million strokes (or 6 to 12 months depending on frequency of use.)

To grease the ram, remove the M6 screw (illustrated below) to allow old grease to come out and inject the new grease into the grease nipple on the ram slider.



Recommended grease: Pilonock Universal #2 (Nihon Oil Co., Ltd.)

- The models JP-3004, JP-5004, JPH-3004 and JPH-5004 have maintenance covers. On these models, the M6 Screw and Grease Nipple are inside the cover.



Be sure to turn the main power OFF before greasing.

3-2 Full Inspection

It is recommended that you inspect the Electro Press every 2 years or 3 million strokes. Janome Sewing Machine Co., Ltd. (Industrial Automation Systems Division) or your dealer can inspect or repair it for you at cost price.

4. ADJUSTMENT

4-1 Adjustable Value List

To confirm that values such as the calibration amount are normal, refer to the “Adjustable Value List.” The “Adjustable Value List” may cover up to two pages depending on the setting. Press the [ESC] key to return to the previous page.

Press the [MODE] key to display the Maintenance Mode Menu.

Select “Adjustment” and press the [ENTR] key.

Maintenance Mode Menu
Adjustment
Version Information
Setting Information
Diagnostic Mode
Mechanical Adjustment Mode

Select “Adjustable Value List” and press the [ENTR] key.

Adjustment
Adjustable Value List
Position Offset
Load Calibration
Clear Load Calibration
Position Adjustment
Clear Position Adjustment
Measure of Strain
Load CalAmnt Offset
Load Calibration (Number)

An “Adjustable Value List” like the one to the right is displayed.

The Adjustable Value List may cover two pages depending on the setting. Use the [CURSOR→] and [CURSOR←] keys to move between pages.

Position Offset	0.000 mm
Read Load #1	449 N
Load CalAmnt #1	0 N
Read Load #2	938 N
Load CalAmnt #2	487 N
Read Load #3	1427 N
Load CalAmnt #3	961 N
Pos'nAdjAmnt #1	0.000 mm
Ref Load #1	0 N
Pos'nAdjAmnt #2	0.221 mm
Ref Load #2	8000 N
Load Offset	447 N

<Adjustable Value List Screen>

- Position Offset

This value is added to or subtracted from position values in a program while it is running. It is used to absorb any deviation when the same teaching data is being run on several Electro Presses. It does not change the teaching data itself. The offset setting affects all programs.

- Read Load #1 to 7, Load Calibration Amount #1 to 7

The Read Load amounts and Load Calibration Amounts are settings used to calibration load amounts. Up to seven points can be set. Three points have been registered as default settings. If these amounts are consistent with those in the "Load Calibration Values List", then there is no problem.

However, if there is a considerable difference between the two, it is necessary to reenter the load calibration value.

- Position Adjustment Amount #1 to 7, Ref Load #1 to 7

These settings are used to calibrate the strain that occurs when load is applied. Up to seven points can be set. Two points (one is when zero load is applied and the other is when a load is applied) have been registered as default. (These points have not been registered for the unit type.)

If "Absolute Position Adjust Y/N (System settings)" is set to "Enable", the strain will be calculated from this value.

- Load Offset

This value is added to or subtracted from the load values.

Without applying load, select "Load Offset" from "Adjustment" in the maintenance mode menu (**MODE** key) and press the **[ENTR]** key to fix the default value. The offset amount is set so that 0 is displayed when no load is applied. In this way, when power is turned on load reset is executed manually.

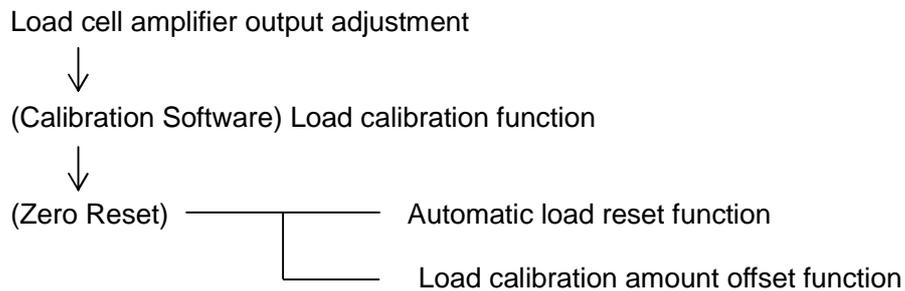
This setting does not change teaching data. The offset setting effects all programs.

4-2 Load Calibration

The ram on the Electro Press is equipped with a load cell, which enables high-precision load control.

The load cell is also equipped with a zero reset function. This function resets the load to zero when the load standard is changed.

The load cell amplifier and the calibration software can be adjusted or corrected. Calibration of the load cell is performed in the following three steps.



In normal operation execute a zero point adjustment using the zero reset function. There are two types of zero reset functions: [Automatic Load Reset] function automatically conducts the zero point adjustment for each stroke and the [Load Calibration Amount Offset] function, which is used to conduct a zero point adjustment manually when necessary.

Load calibration is usually performed with the load calibration function.

Output adjustment of the load cell amplifier should be done during overall maintenance or when the load offset value exceeds 25% of the standard load value. For details regarding the adjustment, refer to the Service Manual.

The adjustment methods for the [Load Calibration] function and the [Zero Reset] function are explained in this manual.

Please contact Janome Sewing Machine Co., Ltd. (Industrial Automation Systems Division) or your dealer when replacing boards etc. for a load cell amplifier output adjustment..

If you cannot calibrate the load cell by yourself, Janome Sewing Machine Co., Ltd. (Industrial Automation Systems Division) or your dealer will calibrate your load cell at cost price.

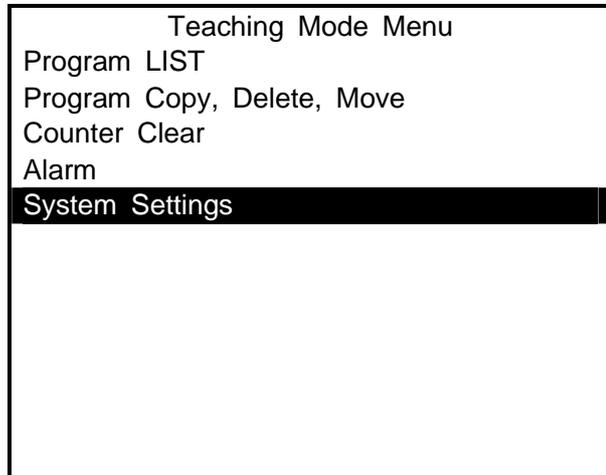
4-2-1 Load Calibration Amount Offset (Zero Reset) Function

Manually offsets the load amount and the zero reset.
When you use this function, be sure not to apply any load to the ram.

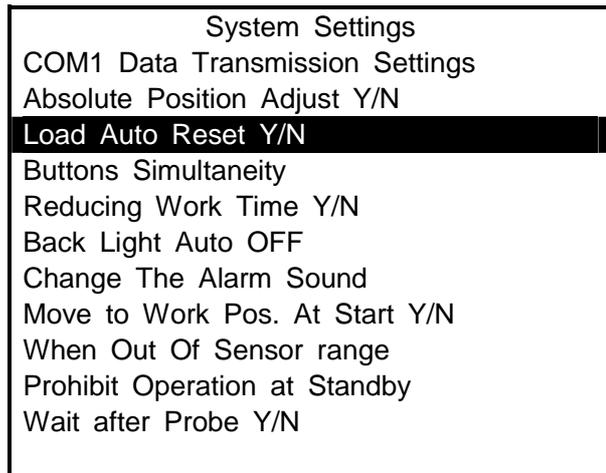
Enter teaching mode to set the Load Calibration Amount Offset.

Press the [MENU] key.

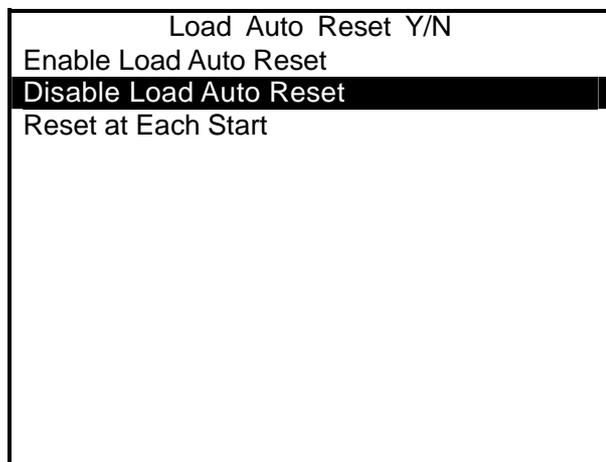
Select [System Settings] and press the [ENTR] key.



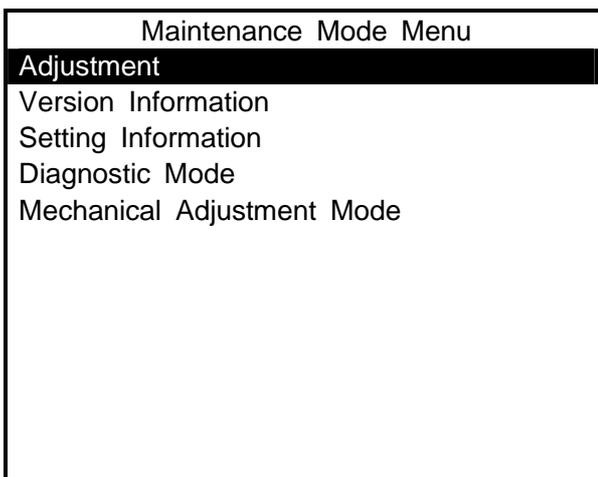
Select [Load Auto Reset Y/N] and press the [ENTR] key.



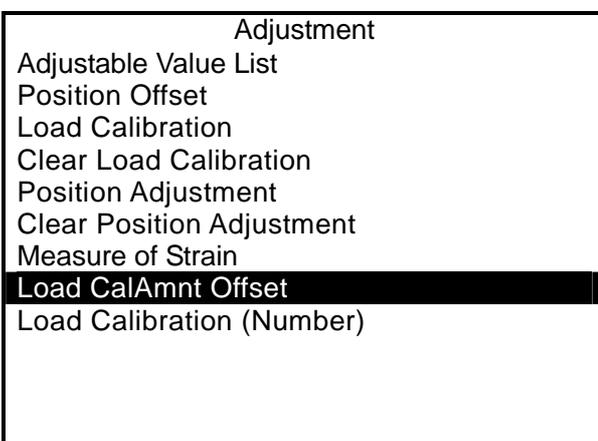
Press the [CURSOR] key, select [Disable Load Auto Reset] and press the [ENTR] key.



Press the [MODE] key, select [Adjustment] and press the [ENTR] key.

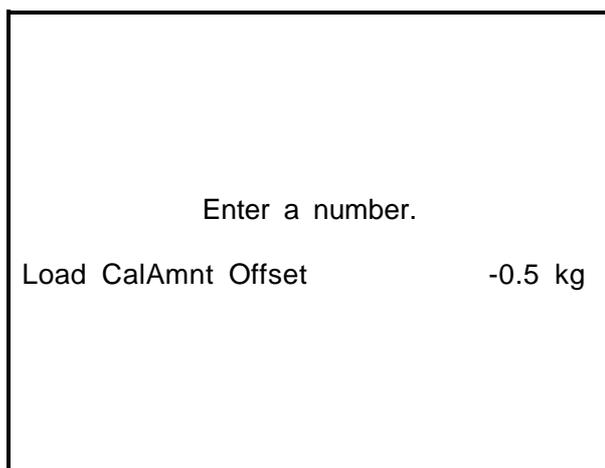


Select [Load CalAmnt Offset] and press the [ENTR] key.



The screen will display the optimum value for the offset. Press the [ENT] key to apply the displayed value to offset those set at the factory.

You can also enter a number for the calibration amount.



Note:

When you enter a calibration amount, do not enter a number that is too large.

If the number entered is too large, it can lead to malfunction of the Electro Press.

If any malfunction occurs, contact Janome Sewing Machine Co., Ltd. (Industrial Automation Systems Division) or your dealer.

4-2-2 Load Calibration Function

<Confirmation of Load Calibration Amount>

Firstly, to confirm the Adjustable Value List is normal, refer to [Adjustable Value List.]

Up to seven of these Read Load/ Load Calibration Amounts can be set. Check the amounts registered on each page. 3 Read Load/ Load Calibration Amounts are set before shipment. If all the amounts are in agreement with the Adjustable Value List, no further adjustment is necessary. Press the [ESC] key to return to the main screen.

Position Offset	0.000 mm
Read Load #1	449 N
Load CalAmnt #1	0 N
Read Load #2	938 N
Load CalAmnt #2	487 N
Read Load #3	1427 N
Load CalAmnt #3	961 N
Load Offset	447 N

If there is any significant difference between the value on your screen and the adjustable value list, reenter the load calibration from the adjustable value list. Refer to the next page.

4-2-3 Load Calibration Function (Number)

Enter teaching mode.

Press the [MODE] key to bring up the Maintenance Mode Menu.

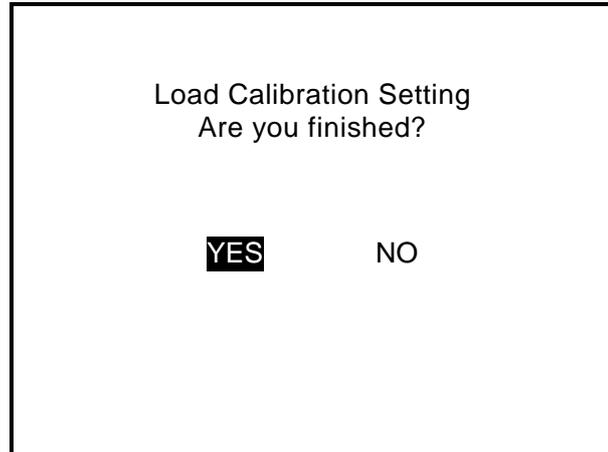
Select [Adjustment] and press the [ENTR] key.

Select [Load Calibration (Number)] and press the [ENTR] key.
The screen to right will appear.

To change the read load, enter a new value using the numeric keys and press the [ENTR] key.

Load Calibration #1
Enter a Number.
Read Load <input type="text" value="0"/> N

When you have fully completed the load calibration, select [YES] and press the [ENTR] key. If you want to continue the calibration, select [NO] and repeat the process.



Note:

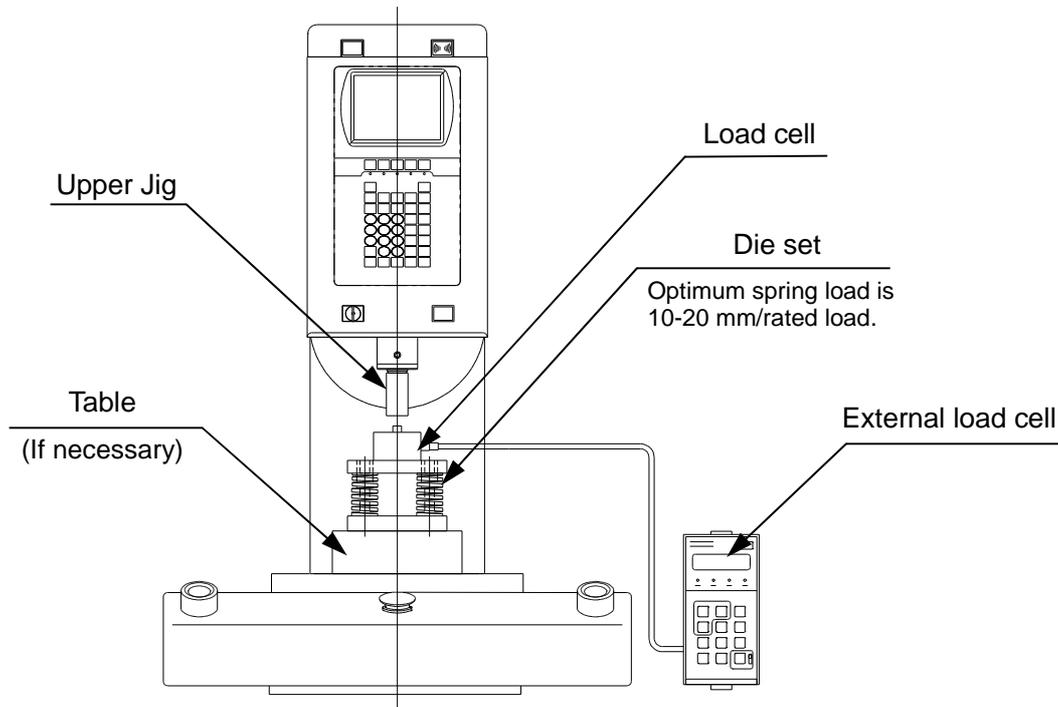
1. At the 1st point of calibration, be sure to register the value while no pressure is applied to the ram. The calibration data can contain up to six points.
2. When you conduct load calibration with the numeric keys, only newly entered points are saved as calibration points. For example, if there are four calibration points already registered and you change the second one only, the result is that only two calibration points are saved if you finish at the second calibration point. All four points must be reentered to retain the points that didn't require any change.
3. When you enter load calibration amounts, enter them in order of smallest to largest.

4-2-4 Load Calibration Function

If the load value displayed on the Electro Press appears as if it may be wrong, follow the procedure below to perform load calibration.

Note:

To use this function, the following settings are necessary.



Switch to teaching mode to set the load calibration function.

Press the [MODE] key.

Select [Adjustment] in the maintenance mode menu and press the [ENTR] key.

Select [Clear Load Calibration] under the [Adjustment] menu and press the [ENTR] key.

Select [YES] and press the [ENTR] key.

The registered load calibration data will be deleted.

Highlight [Load Calibration] and press the [ENTR] key.

<The 1st Point>

Without pressure being applied to the ram, press both start switches and then release one switch.

- Press both start switches to lower the ram.
- Press one start switch to stop the ram.
- Release both start switches to raise the ram.

Load Calibration #1	
Press Both Start Buttons	
Read Pos.	0 mm
Read Load	150 N

Press the [ENTR] key.

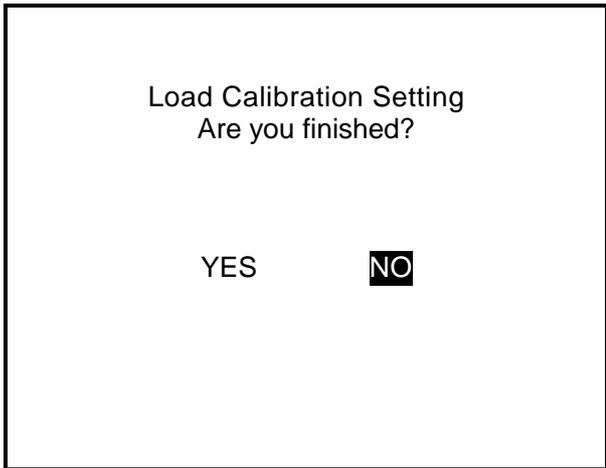
Load Calibration #1	
Press Both Start Buttons	
Read Pos.	10,000 mm
Read Load	150 N

Press the [ENTR] key.

- At the 1st point of load calibration data make sure 0 (no load) is registered.

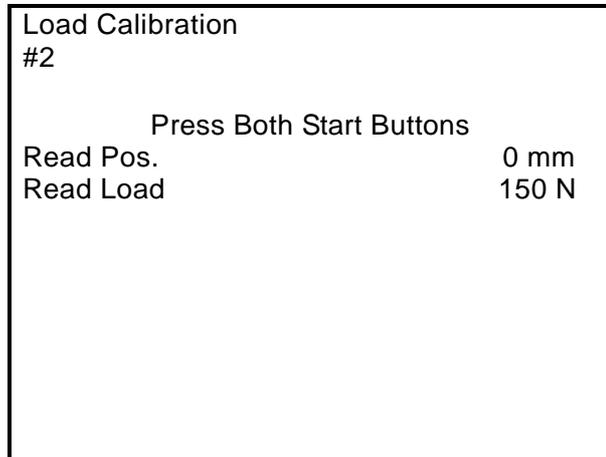
Load Calibration #1	
Enter a Number.	
Load CalAmnt	0 N

Highlight [NO] and press the [ENTR] key.

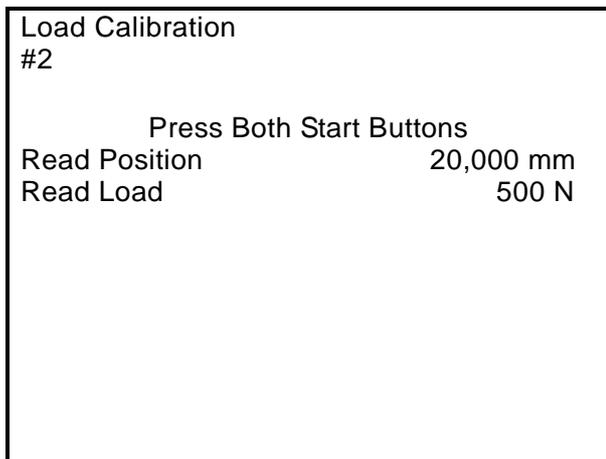


<The 2nd Point>

Apply pressure to the ram and press both start switches. Release one start switch when the pressure reaches about 10% of the maximum load and fix the load value.

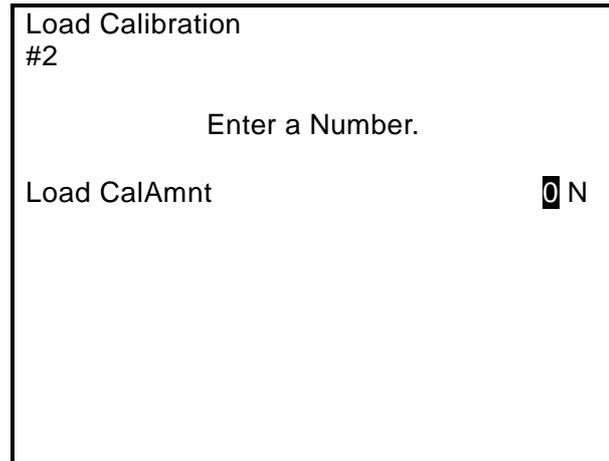


Press the [ENTR] key.



Press the [ENTR] key.

Enter the value of the calibrator and press the [ENTR] key.



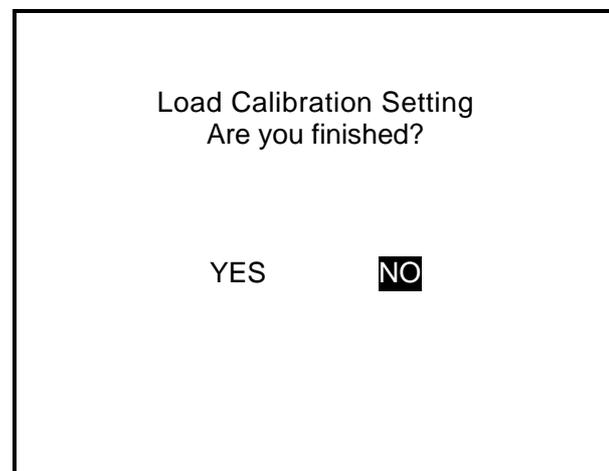
Load Calibration
#2

Enter a Number.

Load CalAmnt

0 N

Highlight [NO] and press the [ENTR] key.



Load Calibration Setting
Are you finished?

YES NO

<The 3rd Point>

Apply pressure in the same way as you did for the 2nd point and enter a load calibration amount that is close to the maximum load value.

When you have fully completed the load calibration, highlight [YES] and press the [ENTR] key. If you want to enter 4 points or more, highlight [NO] and repeat the process.

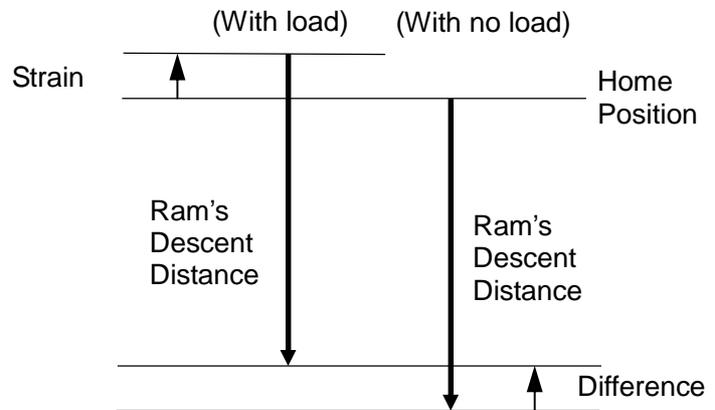
Note:

1. At the 1st point of calibration, be sure that no pressure is applied to the ram when you enter the value. Up to six points can be entered as calibration data.
2. Usually, calibration is conducted at three points; the 1st point without pressure, the 2nd point at approximately 10 % of the maximum pressure, and the 3rd point close to the maximum pressure.
3. If you leave the ram at the maximum pressure, a servomotor tripping error may occur.
4. When you enter the load calibration amounts, be sure to enter them in order of smallest to largest.

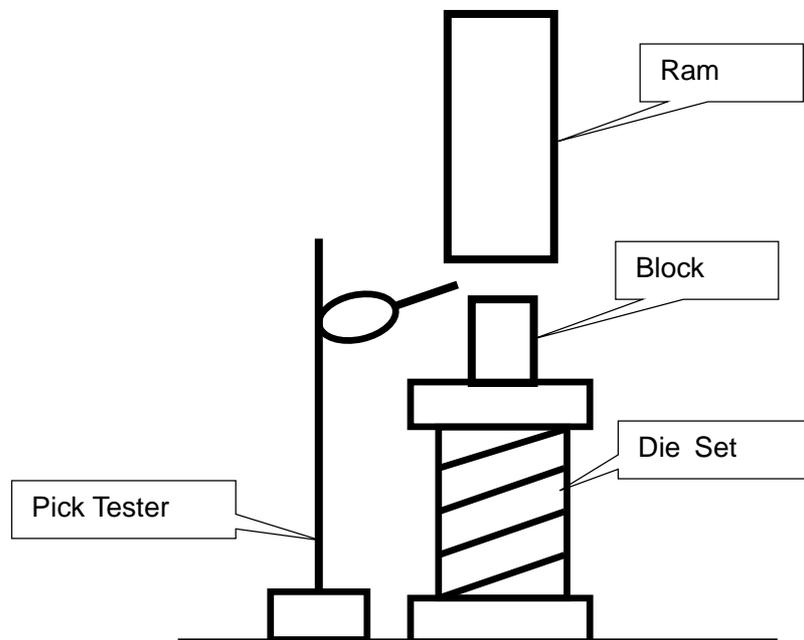
4-3 Absolute Position Adjustment

Measure the strain. The value measured here is used to calculate the calibration amount when “Absolute Position Adjust Y/N” is set to “Enable.”

First, the distance the ram descends with the load applied is recorded. Then, the ram is lowered by the same distance with no load applied. Finally the difference between the descent distances with load and without is measured.



This section explains how to adjust the absolute position for the setting shown in the figure on the right.



Switch to teaching mode.

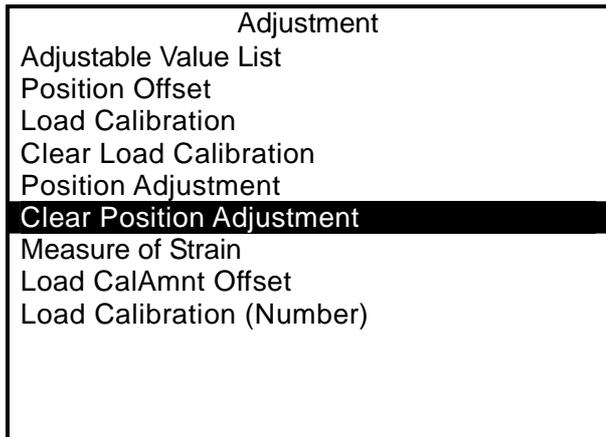
Press the [MODE] key.

Select “Adjustment” from the maintenance mode menu and press the [ENTR] key.

Select "Clear Position Adjustment" from the "Adjustment" menu and press the [ENTR] key to clear the absolute position adjustment amount.

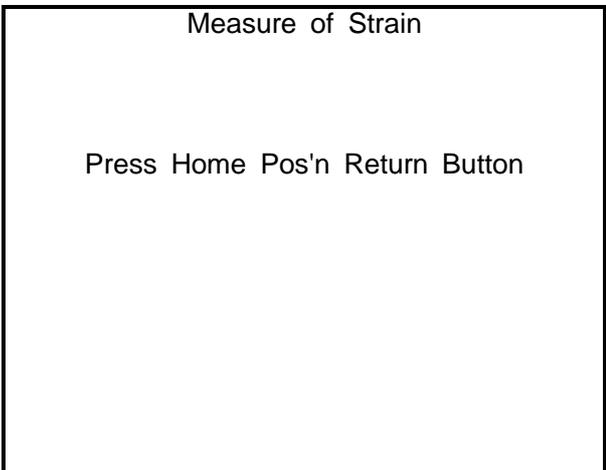
The confirmation screen will appear. Select "YES" and press the [ENTR] key.

The registered absolute position adjustment data is cleared.



After clearing the absolute position adjustment amount, select "Measure of Strain" from the "Adjustment" menu and press the [ENTR] key.

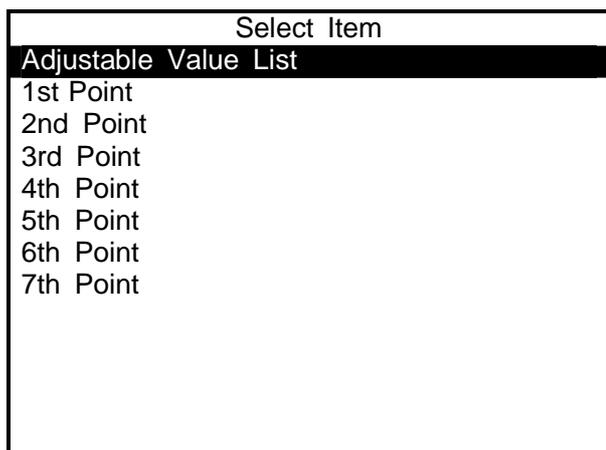
Press the home position return button ([HOME] key on the unit type) to return the ram to the mechanical home position.



After the ram returns to the home position, the screen to the right will appear.

Select a point to measure its strain. Up to 7 points can be entered depending on load amount.

Measure strain starting from the 1st Point.



After selecting a point, the strain measurement menu to the right will appear.

#1 Measure of Strain	
Driving of Stop Load	
Driving of Stop Position	
Input of Position Adjustment	
Decision of Position Adjustment	
Ref Load	0 N
Pos'nAdjAmnt	0 mm
Press [ESC] to Finish.	

<Strain Measurement Menu>

1. Driving of Stop Load

Select "Driving of Stop Load" and enter "Target of Stop Load Rate."

Enter a number as a percentage of the maximum load of the Electro Press you are using.

When this percentage of load is applied strain will be measured.

Enter a number.	
Target of Stop Load Rate	80 %

Press both start switches (the [Z] key on the unit type) to lower the ram.

Keep pressing the switches until the ram stops automatically. The ram stops when the current load reaches the entered Target of Stop Load Rate.

When the ram stops release the start switches ([Z] key for the unit type). In this case, the ram remains stopped even if both start switches are released.

"Current Position" and "Current Load" on stop are displayed on the screen.

Press Both Start Buttons	
Target of Stop Load Rate	80 %
Current Pos'n	0 mm
Current Load	0 N
Press [ESC] to Finish.	

Adjust the pick tester to "0 (zero)" at the position where the ram stops.

Press both start switches ([HOME] key for the unit type) again. The ram ascends to the mechanical home position. After the ram reaches the home position, press the [ESC] key to end "Driving of Stop Load."

2. Driving of Stop Position

When Driving of Stop Position is finished, the strain measurement menu screen will return. Select "Driving of Stop Position." The screen to the right will appear.

Lower the ram with no load applied by the same distance as it is lowered in "Driving of Stop Position".

As it is not necessary to apply load, remove the block on the die set.

Press both start switches (the [Z] key for the unit type) to lower the ram.

Keep pressing the switches until the ram stops automatically. The ram stops when it descends the distance by which it is lowered in Driving of Stop Position.

When the ram stops release the start switches ([Z] key for the unit type). In this case, the ram remains stopped even when both start switches are released.

"Current Position" and "Current Load" on stop are displayed on the screen.

Make a note of the pick tester value at the position where the ram stops.

Press both start switches ([HOME] key for the unit type) again. The ram ascends to the mechanical home position. After the ram reaches the home position, press the [ESC] key to end "Driving of Stop Position."

Press Both Start Buttons	
Target of Stop Position	50.112 mm
Current Pos'n	0 mm
Current Load	0 N
Press [ESC] to Finish.	

3. Input of Position Adjustment

When Driving of Stop Position is finished, the strain measurement menu screen will return. Select "Input of Position Adjustment." The screen to the right will appear.

Enter the value measured by the pick tester in "Driving of Stop Position."

Enter a number.	
Pos'nAdjAmnt	0 mm

4. Decision of Position Adjustment

When "Pos'nAdjAmnt" is entered, the strain measurement menu screen returns.

The current load in "Driving of Stop Load" is displayed as "Ref Load", and the entered position adjustment amount is displayed as "Pos'nAdjAmnt" on the screen.

#1 Measure of Strain	
Driving of Stop Load	
Driving of Stop Position	
Input of Position Adjustment	
Decision of Position Adjustment	
Ref Load	0 N
Pos'nAdjAmnt	0 mm
Press [ESC] to Finish.	
<Strain Measurement Menu>	

Select "Decision of Position Adjustment" to fix the "Ref Load" and "Pos'nAdjAmnt" displayed on the screen as absolute position adjustment values.

Press the [ESC] key to exit Measure of Strain.

If you exit Measure of Strain without selecting Decision of Position Adjustment, "Ref Load" and "Pos'nAdjAmnt" will not be registered as absolute position adjustment values.

Enter 2 points or more to measure the strain.

After the 2nd point is registered, change the load value (Target of Stop Load Rate) and repeat steps 1 to 4.

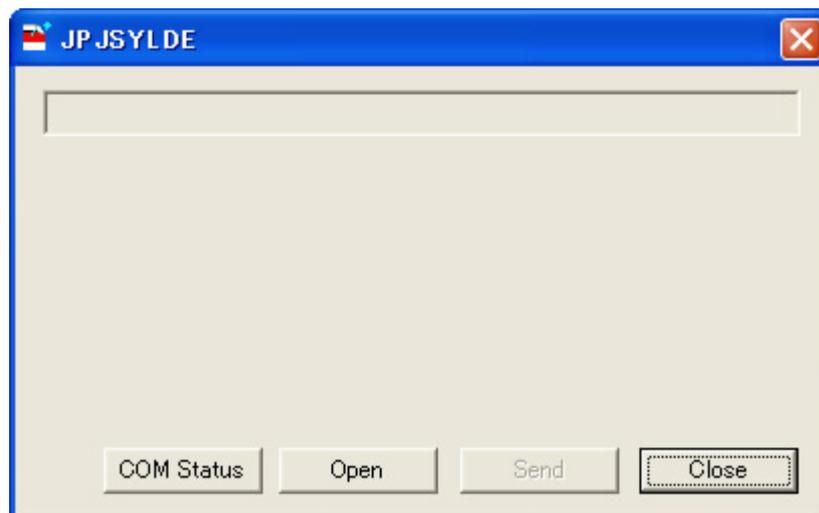
Reference: 0 and 80 % of load have been registered before shipment.

5. HOW TO INSTALL PRESS SYSTEM SOFTWARE

The Electro Press is controlled by built-in “Press System Software.” To upgrade the press system software, follow the instructions below. (For this operation, the machine must be connected to a PC.)

“Press system software” is included on the Operation Manual CD-ROM under the file name, JpSyp_XXX.jsy. (“XXX” indicates version number.)

1. Turn OFF the machine, remove the front cover of the control box and turn the **special mode switch ON**.
2. Turn the machine back ON, copy the “JPJSYLDE” software from the Operation Manual CD-ROM to the local disk of the PC and start it up.
3. Select the communication port status of your PC which is connected to the machine and then click [OK.]
4. Select [Open] on the dialog box and specify the press system software to be downloaded. Then click the button.



5. After data sending is complete, turn the machine OFF, turn **the special mode switch OFF** and then reattach the cover.
- If you are using “JP Designer”, the same operation can also be executed by selecting [Send Press System Software] from the [Press] pull-down menu.

6. TROUBLE SHOOTING

6-1 Self-Diagnosis

In case of system malfunction, the following error messages will be displayed. Follow the instructions on the screen.

<p>Error has occurred Error No. 001</p> <p>Trap Error Turn off the power switch. If error occurs repeatedly Contact your dealer with error number</p>	<p>Error has occurred Error No. 031</p> <p>FLROM Write Error If error occurs repeatedly Contact your dealer with error</p> <p>Press any key.</p>
---	--

If there is insufficient memory space for the teaching data, the following error message will be displayed.

<p>Insufficient memory for Teaching. Please delete unnecessary Programs or sensor settings.</p> <p>Press any key.</p>

6-2 Error Number List

If any of the following errors occur, contact Janome Sewing Machine Co., Ltd. (Industrial Automation Systems Division) or your dealer.

Error Message	Description
Logical Error (No.21)	Software logical error. (It is probable that this is a software error. The function name is displayed with the error number.)
Motor Initialize Error (No.96)	This error occurs after the power is turned ON or the emergency stop switch is released when the ram is moved to the mechanical home position using the home position return switch. The motor Z phase does not come "ON."
Motor Initialize Error (No.97)	This error occurs after the power is turned ON or the emergency stop switch is released when the ram is moved to the mechanical home position using the home position return switch. Even if the ram descends 5 mm after the home position sensor comes ON, the sensor will not go OFF.
Motor Initialize Error (No.98)	This error occurs after the power is turned ON or the emergency stop switch is released when the ram is moved to the mechanical home position using the home position return switch. Even if the ram ascends to 10 mm above the pressing distance, the home position sensor will not come ON.
Motor Initialize Error (No.99)	This error occurs after the power is turned ON or the emergency stop switch is released when the ram is moved to the mechanical home position using the home position return switch. The motor power will not come ON.
Servomotor Driver Error (No.102)	Detected by the servo driver.
RAM Travel Upper Limit (No.104)	The upper limit sensor comes ON during a pressing operation.
RAM Travel Lower Limit (No.105)	The lower limit sensor comes ON during a pressing operation.

- No.102: Servomotor Driver Error occurs if the power is turned OFF and immediately turned back on again. Wait for 5 to 10 seconds after turning the power OFF before you turn it back on. .

6-3 Failure Diagnosis

The Electro Press features a diagnostic mode under the maintenance mode menu in teaching mode.

Select [Diagnostic Mode] to diagnose keys, LCDs, switches, external I/O, servomotor, load cell and hardware, including PC boards.

Check the table below and execute diagnostic mode in the following situations.

- The ram does not move.
- The ram does not respond to the start switches.

Cause	Countermeasure
1. The power cable is not securely connected to the AC outlet.	Connect the power cable securely.
2. The power switch is OFF.	Turn the power switch ON.
3. The select key switch is in the wrong position. <ul style="list-style-type: none"> ● Teaching mode ● Run mode ● External run mode 	Select appropriate mode. TEACH: Teaching mode RUN: Run mode EXT.RUN: External run mode
4. You are trying to start operation although nothing is connected to the teaching pendant connector.	If you are not using the teaching pendant, connect either the monitor box or the short connector included in the package.
5. The emergency stop switch is left pressed in.	Turn the emergency stop switch clockwise to release it.
6. Incorrect teaching data	Delete incorrect program number.
7. An incorrect program number has been set.	Select the correct program number.
8. Failure in servomotor driver	Turn the power breaker OFF and turn it back On after 5 – 10 seconds. If the failure occurs again, contact your service representative.
9. The self-diagnosis message indicates an error.	Correct the error indicated.

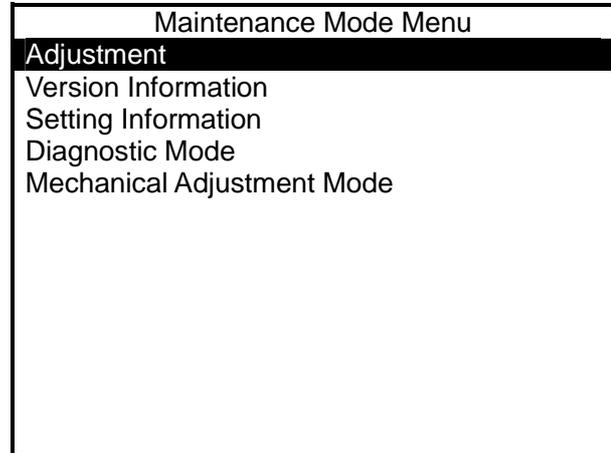
If you still cannot correct the problem after using the above test mode and failure diagnosis, contact Janome Sewing Machine Co., Ltd. (Industrial Automation Systems Division) or your dealer.

Follow the instructions below to check the version information of the Electro Press. This information may be necessary when dealing with trouble.

Menu Screen

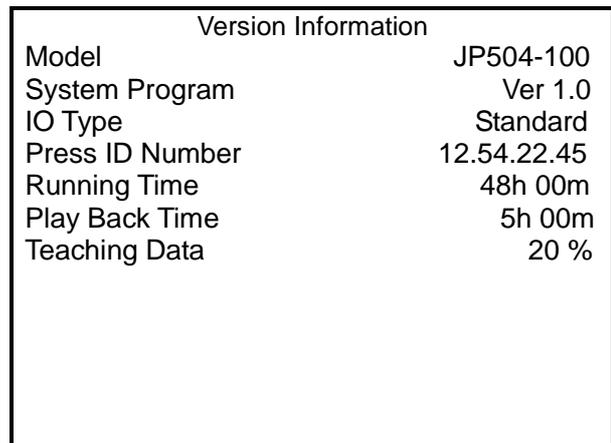
Press the [MODE] key while in teaching mode to display the maintenance mode menu.

- Press the [CURSOR] key to shift the highlight downward.
- Press [CURSOR] key to shift the highlight upward.
- Press the [ESC] key to return to the previous screen.
- Press the [SHIFT] + [ESC] keys to return to the setting screen.
-



Version Information

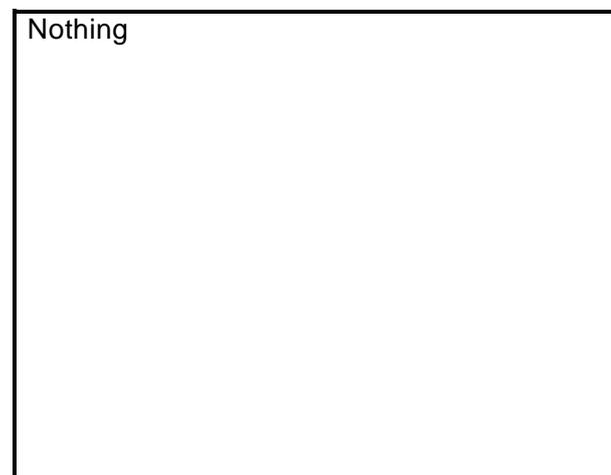
Version information such as program version, power distribution time and pressing time is displayed here.



Setting Information

Special specifications can be checked on this screen.

The screen to the right is displayed when no special specifications are present.



6-3-1 Diagnostic Mode

In diagnostic mode, hardware failures including problems with the keys, the LCD, switches, external I/O, servomotor, load cell and printed boards can be diagnosed.

How to Enter Teaching Mode

Turn the select key switch to [TEACH.]

Operation in the Menu Screen

Press the [MODE] key in teaching mode to display the maintenance mode menu.

- Press the [CURSOR] key to shift the highlight downward.
- Press [CURSOR] key to shift the highlight upward.
- Press the [ESC] key to return to the previous screen.
- Press the [SHIFT] + [ESC] keys to return to the setting screen.

Maintenance Mode Menu
Adjustment
Version Information
Setting Information
Diagnostic Mode
Mechanical Adjustment Mode

- If the emergency stop switch is pressed in diagnostic mode, the power is turned OFF but the buzzer does not sound. Error display does not appear on the screen, either. If you exit diagnostic mode while the emergency stop switch is pressed down, the buzzer sounds and the error display appears on the screen.

If you exit diagnostic mode after releasing the emergency stop switch, the buzzer does not sound and error display does not appear on the screen. However, it is necessary to return the ram to the mechanical home position. (using the home position return switch or [HOME] key)

Select Diagnostic Mode, to display the screen to the right.

Select the item you want to check.

To exit diagnostic mode, press **CTRL** + **ESC** keys (to display the diagnostic menu)

or press **CTRL** + **ESC** keys (to display the base screen.)

Diagnostic Mode
Key of Operation Panel
Operation Panel
Switch
Switch and Bz
External I/O
Sensor
Analog Voltage
COM Communication
Servo Motor
Load Cell
Limit Sensor
Origin Sensor

<Stand-Alone Type>

Diagnostic Mode
Key of Operation Panel
Operation Panel
Start/Stop Panel
Switch and Bz
External I/O
Sensor
Analog Voltage
COM Communication
Servo Motor
Load Cell
Limit Sensor
Origin Sensor

<Head Type>

Diagnostic Mode
Key of Teaching Pendant
Teaching Pendant
Start/Stop Panel
Switch and Bz
External I/O
Sensor
Analog Voltage
COM Communication
Servo Motor
Load Cell
Limit Sensor
Origin Sensor

<Unit Type>

Key of Operation Panel

When you press a key, it is displayed on the LCD. Check that the key pressed corresponds to the screen display.

Press **CTRL** + **ESC** to display the diagnostic menu.

Key of Operation Panel
Press any key.
Exit with [CTRL]+[SEC]
[F1]

Operation Panel (Stand-Alone/Head Type)

This diagnosis menu contains the Switch, Buzzer, LED and LCD.

1. Select Key Switch

Displays the current status of the Select Key Switch. Check that the actual state corresponds to the screen display.

2. Home Position Return Switch

Displays the current status of the Home Position Return Switch. Check that the actual state corresponds to the screen display.

Operation Panel	
Select Key Switch	TEACH
Home Position Return Switch	OFF
Buzzer	OFF
POWER LED	OFF
LED1	ON
LED2	ON
LED3	OFF
LED4	OFF
LED5	OFF
Back Light	ON
Changing Display	
Brightness	Standard

3. Buzzer

When the **ENTR** key is pressed, "ON" will be displayed and a buzzer will sound. When the key is pressed again, the buzzer will stop. (Buzzer OFF) Check that it is working properly.

4. Initialize LED

Pressing the **ENTR** key will toggle between ON and OFF and the home position return switch LED will switch ON and OFF. (This does not make the ram shift.) Check that it is working properly.

5. LED 1 to 5

Pressing the **ENTR** key will toggle between ON and OFF and the LCD will switch ON and OFF. Check that it is working properly.

- This is only an LED test for the operation panel. Please note that it has no effect on the machine. The motor power will not actually be turned OFF even though the [M-PON] LED is turned [OFF.]

6. Back Light

When the **ENTR** key is pressed, the [Backlight] display will switch between ON and OFF. Check that it is working properly.

7. Changing Display

Each time the **ENTR** key is pressed, the background on the operation panel LCD will change in the following order:

"Checkered pattern" → "Highlighted checkered pattern" → "Blank" → "White" → "Operation Panel" screen

Check that the display changes in the above order.

8. Brightness

Each time the **ENTR** key is pressed, the display on the operation panel LCD will change in order of [Standard] → [Bright] → [Dark.] Check that the display changes in the above order.

Teaching Pendant (Unit Type)

This diagnosis menu contains the Enable Switch, Buzzer, LED and LCD.

1. Enable Switch

When the Enable Switch is pressed, "ON" will be displayed. When it is released, "OFF" will be displayed. Check that the actual state corresponds to the screen display.

2. Buzzer

When the key is pressed, "ON" will be displayed and a buzzer will sound. When the key is pressed again, the buzzer will stop. (Buzzer OFF) Check that it is working properly.

Teaching Pendant	
Enable Switch	OFF
Buzzer	OFF
LED1	ON
LED2	OFF
LED3	OFF
LED4	OFF
LED5	OFF
Back Light	ON
Changing Display	
Brightness	Standard
Emergency Stop Switch	OFF

3. LED 1 to 5

Pressing the key will toggle between ON and OFF and the LCD will switch ON and OFF. Check that it works properly.

- This is only an LED test for the teaching pendant. Please note that it has no effect on the machine. The motor power will not be turned OFF even though [M-PON] LED is turned [OFF.]

4. Back Light

When the key is pressed, the [Backlight] display will switch between ON and OFF. Check that the display changes correctly.

5. Changing Display

Each time the key is pressed, the display on the teaching pendant LCD will change in the following order:

"Checkered pattern" → "Highlighted checkered pattern" → "Blank" → "White" → "Operation Panel" screen

Check that the display changes in the above order.

6. Brightness

Each time the key is pressed, the display on the operation panel LCD will change in order of [Standard] → [Bright] → [Dark.]

Check that the display changes in the above order.

7. Emergency Stop Switch

Displays the current status of the emergency stop switch on the teaching pendant.

Turn the switches ON and OFF to check that the display changes in accordance with the actual state.

Switch

The current status of the start switches is displayed. Turn the switches ON and OFF to check that the display changes in accordance with the actual state.

Switch	
Operation Switch (R)	OFF
Operation Switch (L)	ON
Emergency Switch	OFF

<Stand-Alone Type>

Switch Box	
Operation Switch (R)	OFF
Operation Switch (L)	ON
Emergency Switch	OFF

<Head Type>

Highlight "Initialize LED" and press the **ENTR** key to switch between ON and OFF. The Home Position Return Button lights up.

- If a switch box is not connected to the unit type, this diagnosis is invalid.

Switch Box	
Operation Switch (R)	OFF
Operation Switch (L)	ON
Home Pos'n Return Button	OFF
Emergency Switch	OFF
Initialize LED	OFF

<Unit Type>

Switch and Bz

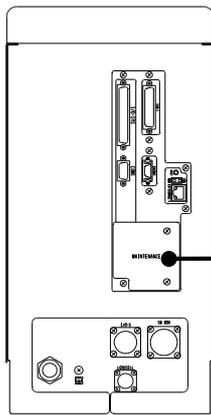
Displays the current status of the switches.
Turn the switches ON and OFF to check that the display state changes in accordance with the actual state.

When “Buzzer” is selected and the **ENTR** key is pressed, a buzzer will sound. To stop the Buzzer press the key again. (Buzzer OFF)

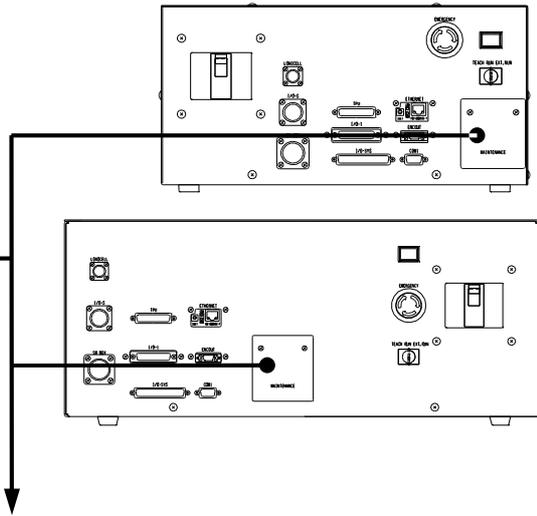
- When you exit the diagnosis, be sure to turn ON/OFF back to the previous state.

Switch and Bz	
DIP Switch	10100101
Special Switch	OFF
Spare Switch	ON
<hr/>	
Bz	OFF
<hr/>	

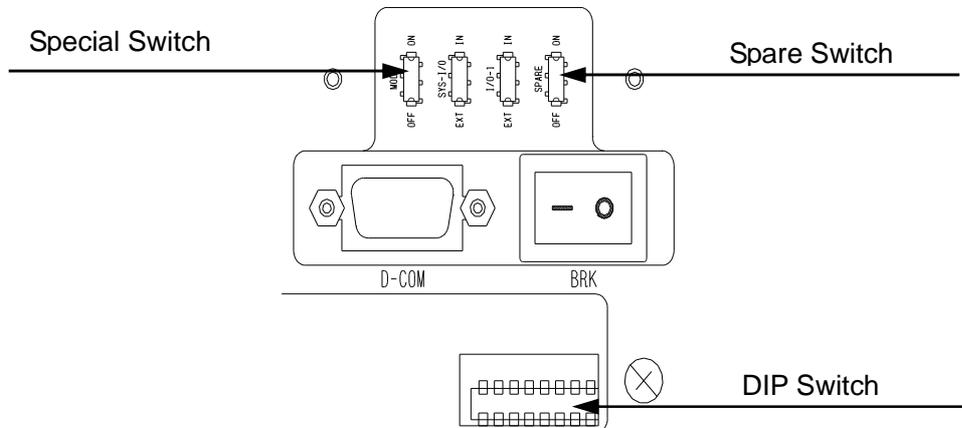
Rear Body of the Stand-Alone and Head Types



Control Box of the Unit Type



Inside the cover



External I/O

Connect an external I/O test device to the I/O-SYS or I/O-1 terminal to check that signals are being input/output properly.

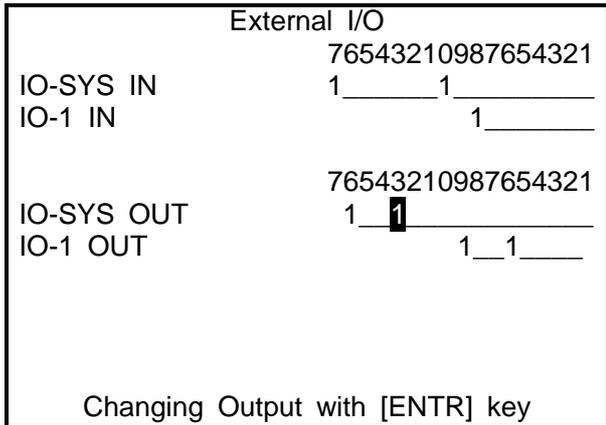
The current input/output status of the I/O-SYS or I/O-1 will be displayed:

- ON: 1
- OFF: __

Place the cursor under each pin number and press the **[ENTR]** key one by one. The output status of the pin number will be displayed.

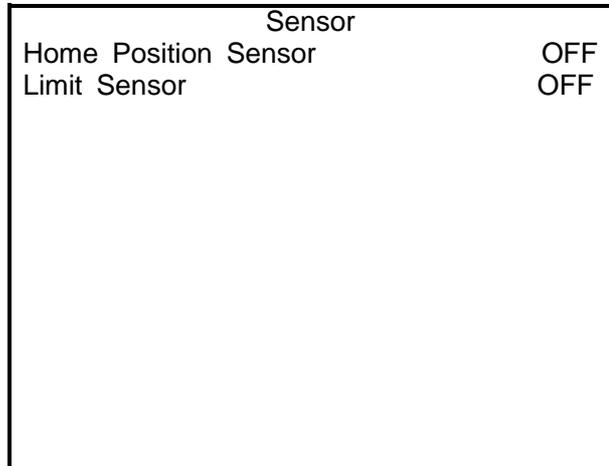
Confirm that the screen display on the operation panel (teaching pendant for the unit type) matches that of the external I/O test device.

- The I/O-1 is optional. If the machine is not equipped with the I/O-1, only the I/O-SYS is displayed.



Sensor

The current sensor status is displayed. Home Position Sensor and Limit Sensor are OFF in the normal operation range. Check that OFF is displayed.



COM Communication

Select "Set Output String." The Output String entry screen will appear. Set output strings and then select "Execute Output String." The output strings you have set will be output from the COM port. Activate communication software on your PC and check that data is being received normally.

Data received using COM is displayed in 1 byte in HEX and ASCII at the bottom of the screen.

Hidden characters (00H to 1FH, 7FH to FFH) will be displayed only in HEX text. ASCII text will not be displayed (will appear blank.)

COM Communication	
Baud rate	9600
Set Output String	
Execute Output String	
30 31 32 33 41 42 43 61 62 63 0123ABCabc	
04 0D	d

Baud rate will be changed as follows:
9600/19200/38400

- If you change the baud rate on this screen, the value will be restored when you exit the failure diagnosis.

Servomotor Diagnosis

The servomotor diagnosis contains 2 screens.

To switch between screens, press the , keys on the servomotor diagnosis screen.

In the servomotor diagnosis, servomotor operation and IO output signals from the servomotor can be checked.

You can also refer to the number of servo alarm (screen 1) output in a servo driver error. If the servo driver works normally, "0" is displayed.

1. Number of Output Pulse

Set the number of pulses to be output. If 2000 is set, the ram' will descend a distance of 2 mm.

2. Rate of Output Pulse

Specifies the speed at which the pulse is output.

If the number of pulses output is set to 2000 and the output pulse rate is set to 1000, it takes 2 seconds for the ram to move 2 mm.

Servomotor	
Number of Output Pulse	4096
Rate of Output Pulse	1000
Output of Motor Power ON	ON
Servo ON	ON
Number of Servo Alarm	0

<Screen 1>

3. Output of Motor Power ON

Turn the motor power ON.

When the motor power to the electro press is OFF, turn the screen display ON (key) and turn it OFF to turn the motor power ON.

(If the power supply is shut down in an emergency stop or by the I/O-S, the motor power will not come ON.)

4. Servo ON

Set this ON. Note that this will not come ON if the motor power is OFF.

After setting "Number of Output Pulse", "Rate of Output Pulse" and turning the motor power and servo ON, press the key to display Screen 2 of the servomotor diagnosis screen.

5. Detection of Motor Power ON

Confirm that this is displayed as ON. If OFF is displayed, turn the motor power ON on Screen 1.

6. Servo Ready

Confirm that this is displayed as ON. If OFF is displayed, turn the servo ON on Screen 1.

Servomotor	
Absolute of Encoder Value	123456789
Incremental Encoder Value	123456789
Detection of Motor Power ON	
Servo Ready	
Servo Finish Positioning	
Servo Near Positioning	
Detection of Emergency	OFF

<Screen 2>

Press both start switches (key for the unit type) to lower the ram.

If Number of Output Pulse is set to "2000" and Rate of Output Pulse is set to "1000", the ram descends 2 mm for 2 seconds.

7. Absolute of Encoder Value

This is an absolute encoder value which changes in accordance with motor rotation, that is, the differential value between the position before rotation and after rotation.

If the encoder value is in the range of 4 times as many as the Number of Output Pulse and ± 20 , it is judged normal. For example, if Number of Output Pulse is 2000, Absolute of Encoder Value will be 8000 ± 20 .

8. Incremental Encoder Value

This is an incremental encoder value which changes in accordance with motor rotation, that is, a differential value between the position before rotation and after rotation.

If the encoder value is in the range of four times as many as the Number of Output Pulse and ± 20 , it is judged normal. For example, if Number of Output Pulse is 2000, Absolute of Encoder Value will be 8000 ± 20 .

<IO Output Signal from the Servomotor>

9. Servo Finish Positioning

If the deviation pulse is less than the set value, it is recognized that the ram has reached the position it be and "ON" is displayed. When it is normal, ON is displayed.

10. Servo Near Positioning

If the servomotor position is within the Servo Near Positioning range, "ON" is displayed. When it is normal, ON is displayed.

11. Detection of Emergency

When the emergency stop switch is pressed, ON is displayed.

Load Cell

Set the load meter at a position where load can be applied.

Press the home position return switch ([HOME] for the unit type) to return the ram to the mechanical home position.

When the ram reaches the home position, lower it using the jog keys. The current position of the ram and the current load will be displayed on the screen. Check that the value on the screen of the machine matches that of the load meter.

<p style="text-align: center;">Load Cell</p> <p style="text-align: center;">Press HOME Key For Mechanical Initializing</p>	<p style="text-align: center;">Load Cell</p> <p style="text-align: center;">Push Operation Switch</p> <table><tr><td>Read Pos.</td><td style="text-align: right;">0.000 mm</td></tr><tr><td>Read Load</td><td style="text-align: right;">0.000 N</td></tr></table>	Read Pos.	0.000 mm	Read Load	0.000 N
Read Pos.	0.000 mm				
Read Load	0.000 N				

Limit Sensor

Press the home position return switch ([HOME] on the unit type) to return the ram to the mechanical home position.

After the ram reaches the home position, lower it using the jog keys to the position where the limit sensor comes ON. The maximum stroke of the ram and the distance to the limit sensor will be displayed.

When the limit sensor comes ON, the ram automatically stops.

The normal value range is between 1 mm and 5 mm.

Limit Sensor	
Push Operation Switch	
Limit Sensor	ON
Position of Limit Sensor	3.000 mm

Origin Sensor

Press the home position return switch ([HOME] on the unit type) to return the ram to the mechanical home position.

After that, press the start switches and the same action is executed to return the ram to the home position.

The position error and phase error of the home position sensor will be displayed.

The normal value range is between -25 and +25 %.

Origin Sensor	
Position Error	-0.180 mm
Phase Error	-9.0 %

Mechanical Adjustment Mode

Note:

The mechanical adjustment mode is used for adjusting the machine before shipping. Please do not use this mode as it could lead to malfunction of the Electro Press.

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