

# **MITANI BINDER, TYPE SPECIAL A**

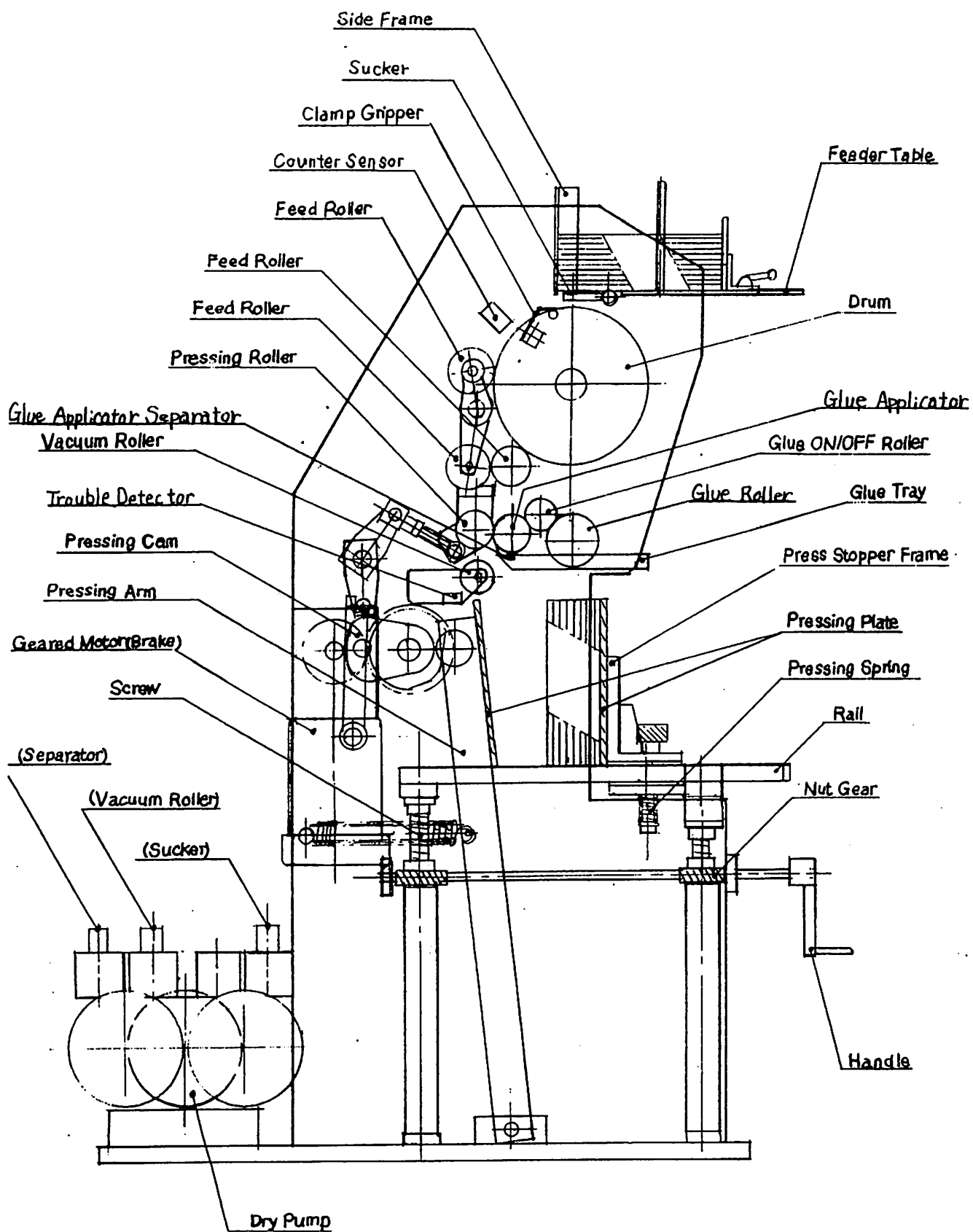
**OPERATING MANUAL  
PARTS MANUAL  
WIRING DIAGRAMS**

**MITANI CO., LTD.**  
2-2-18 Kamejima, Nakamura-ku,  
Nagoya, Japan 453-0013  
TEL : 052-451-3732  
FAX : 052-451-6108  
E-mail : mitani@kind.ocn.ne.jp

# CONTENTS

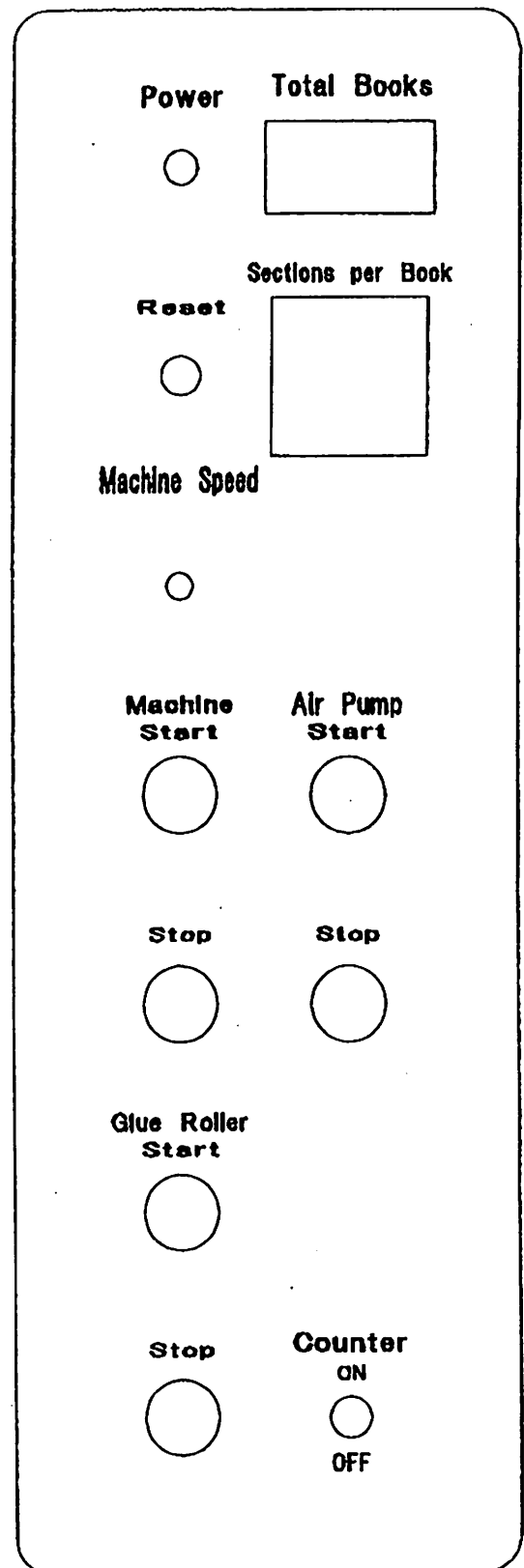
|                                              |    |
|----------------------------------------------|----|
| 1.1 Name of parts .....                      | 1  |
| 1.2 Name and Function of Control Panel ..... | 2  |
| 2 Makeready .....                            | 3  |
| 3 Start of Machine .....                     | 6  |
| 4 Vacuum Roller.....                         | 7  |
| 5 Adjusting of Clamp Gripper.....            | 8  |
| 6 Glue Roller Scraper .....                  | 9  |
| 7 Lubrication .....                          | 10 |
| 8 Consumable Parts .....                     | 11 |
| 9 Trouble Shooting.....                      | 12 |
| 10 Wiring Diagrams .....                     | 18 |

## 1.1 NAME OF PARTS



## 1.2 NAME AND FUNCTION OF CONTROL PANEL

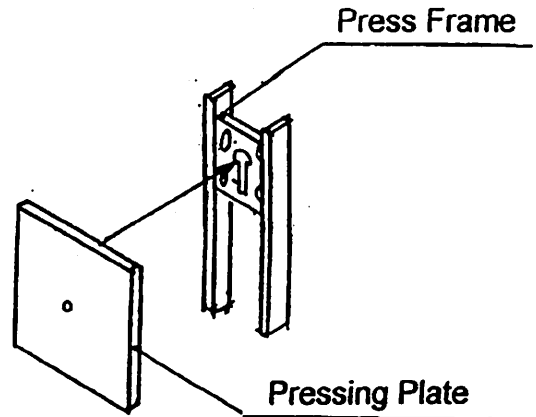
1. Power  
When Power is ON lamp is turned on.
2. Total Copies  
Total numbers of finished books are shown.
3. Reset  
This clears counter numbers (Sections per Book) to 0 (zero).
4. Sections per Book  
Numbers of sections (signatures) for one book can be set.
5. Main Shaft Speed (Speed Control Knob)  
Machine speed can be set from 0 to 100rpm.
6. Main Shaft (Start Button)  
By pushing this button machine starts running.
7. Stop  
By pushing this button machine stops.
8. Air Pump  
By pushing this button Dry Pump starts operating.
9. Stop  
By pushing this button Dry Pump stops.
10. Glue Roller  
By pushing this button Glue Roller starts Running.
11. Stop  
By pushing this button Glue Roller stops.
12. Counter  
When it is ON Sections per Book is activated.  
(Note) When it is OFF Pressing Roller is not in function.



## 2. MAKEREADY

### 2.1 Setting of Pressing Plate

- (1) Pull Press Frame to end and mount Pressing Plate on it. (Sketch 1)
- (2) Mount another Pressing Plate on Press Stopper Frame by M6 screw. (Sketch 2)
- (3) Push Pressing Plate forward to end and set top of Pressing Plate to be 15 to 20mm below Vacuum Roller by turning clockwise the wheel located on the front side of machine. (Fig. 5)



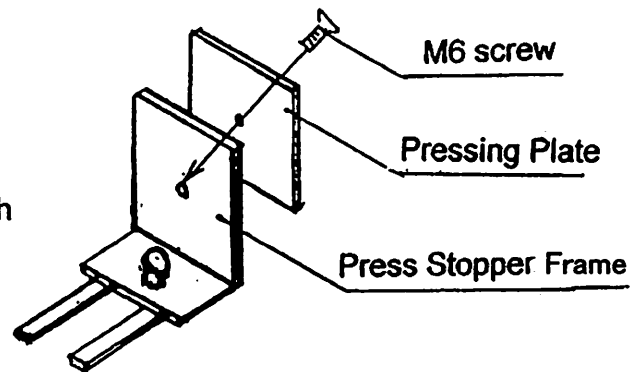
Sketch 1

### 2.2 Setting of Feeder

- (1) Place a signature on Feeder Table and set it to front guide a little loosely. Move positioning shaft by a knob under the Feeder Table and fix position of signature laterally with approx. 1mm gap between signature and positioning shaft. (Fig. 1)

### 2.3 Setting of Side Plate of Press Station

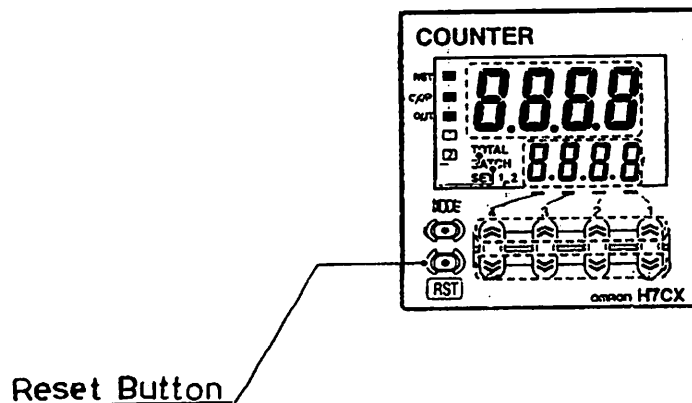
- (1) Pull Pressing Plate to end.
- (2) Put a signature on Pressing Plate and set Side Plate laterally to one side of signature with 1mm gap. (Fig. 5)
- (3) Fix Rebound Stop Plate under bottom of a signature. (Fig. 6)



Sketch 2

### 2.4 Setting of Counter

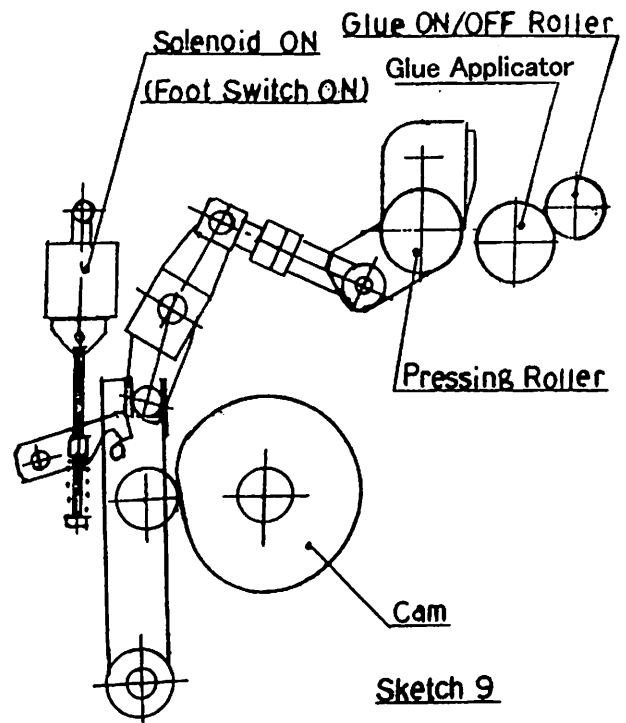
- (1) Set numbers of signatures per book and push reset button. (Sketch 8)
- (Note) When changing numbers push reset button and previous numbers will be cleared.



Sketch 8

## 2.5 Adjusting of Pressing Roller

- (1) Make 2 pieces of 30mm wide ribbon by cutting signature to feed.
  - (2) Step on Foot Switch make wide gap between Pressing Roller and Glue Applicator. (Sketch 9)
  - (3) Insert above signature ribbon on both ends of Pressing Roller respectively.
  - (4) Set Foot Switch free and adjust pressure of Pressing Roller by adjusting bolt so that both signature ribbons can be pulled out easily and equally. (Turning adjusting bolt clockwise makes pressure weaker and turning anti-clockwise makes it stronger). (Sketch 10)
- (Note) Unless this adjustment is properly done Pressing Roller gets glue from Glue Applicator. This adjustment should be checked once a week.

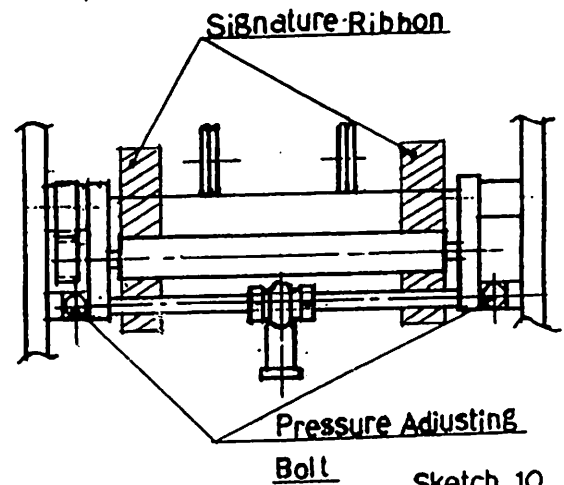


Sketch 9

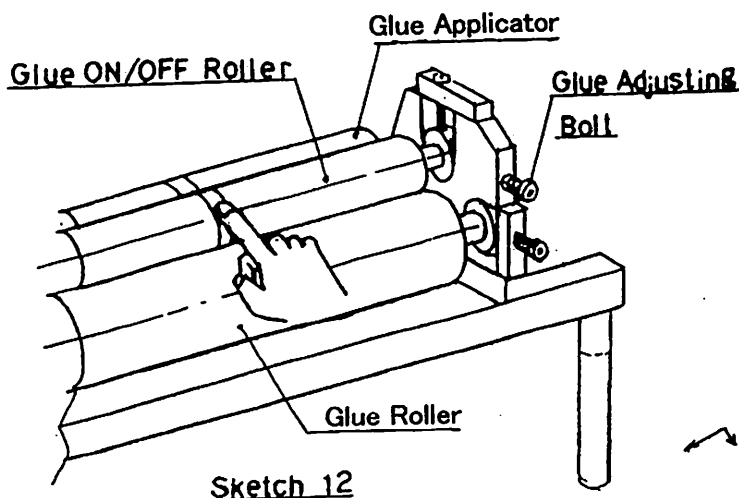
## 2.6 Adjusting of Glue On/Off Roller

- (1) Glue ON
  - Feed glue from Glue Tank to Glue Tray.
  - Move lever down and glue starts to feed.

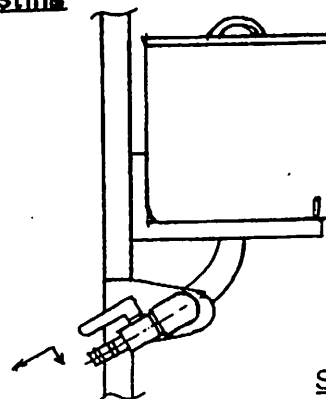
(Note) During production feed glue constantly to Glue Tray by the lever. (Sketch 11)
- (2) Adjusting of Glue Applicator
  - Move up red lever.
  - Set Glue On/Off Roller closer to Glue Applicator.
  - Switch Start Button ON.
  - Set proper amount of glue by adjusting gap between Glue On/Off Roller and Glue Applicator by Glue Adjusting Knob.



Sketch 10



Sketch 12



Sketch 11

- Turning Glue Adjusting Knob clockwise gives less glue.
- Turning Glue Adjusting Knob anticlockwise gives more glue.
- Touch Glue Applicator with finger and check amount of glue laterally. (Sketch 12)

## 2.7 Setting of Signatures

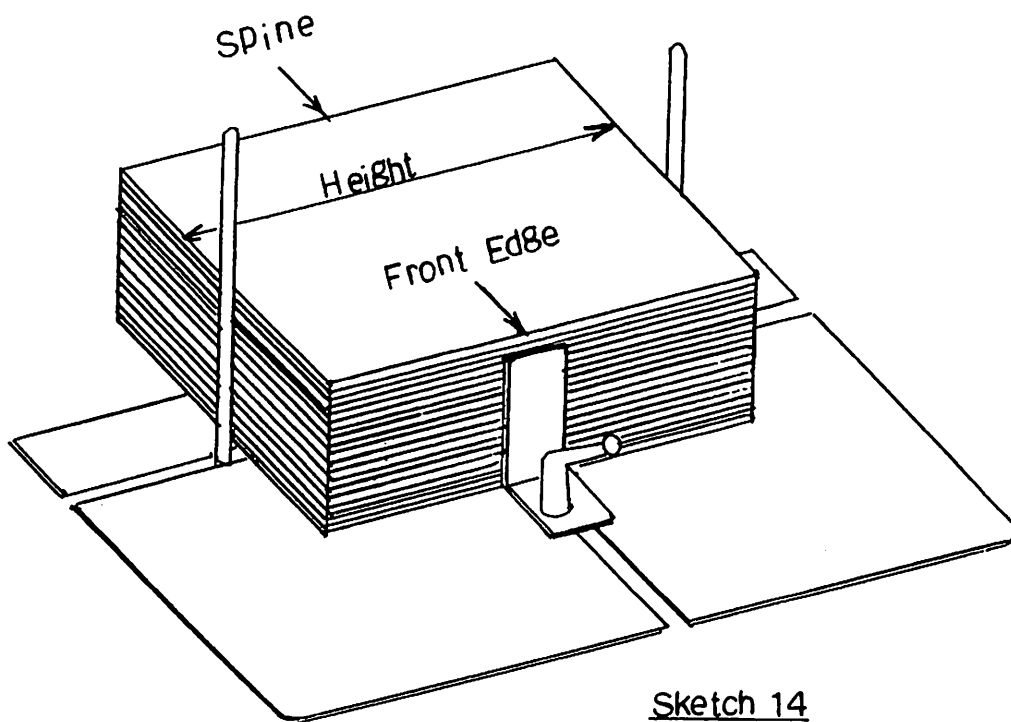
(1) Place signatures on Feeder Table.

(Note) Spine side should be toward the back of Table.

Set signatures so as not to drop from Double Feed Stopper. (Sketch 13)

(2) Set Front Guide toward front edge of signature. (Sketch 14)

(Note) If it is set too loosely signature is fed skewed.



Sketch 14

### **3. START OF MACHINE**

3.1 Push Start Button ON : Speed can be controlled by Speed Control Knob.

Turning clockwise speed is increased (up to 80cycles/min).

Turning anticlockwise speed is decreased (down to 0).

(Note) Normally 70 to 75 cycles/minute is recommendable.

With big size signature slower speed is recommended.

3.2 Reset Total Counter to 0.

3.3 Push Air Pump Start Button ON : It is recommended to push this button when Sucker is in bottom position.

## 4. VACUUM ROLLER

### 4.1 Function

Vacuum Rollers are designed to hold glued signatures straight while being transferred into Pressing Station.

Keep holes of Vacuum Rollers clean from print powder and glue so as to supply proper vacuum power. Insufficient vacuum power causes operation troubles.

### 4.2 Dismantling of Vacuum Rollers.

- (1) Take off Hose Joint from Pin.
- (2) Take off fixing Nuts (2xM12) and then assembly of Vacuum Roller from Base.
- (3) Take off Roller from assembly of Vacuum Roller.
- (4) Take off fixing Bolt (M4) and then Core from Pin.

### 4.3 Cleaning of Vacuum Roller

- (1) Clean dirt from hole of Core and Shaft by using a 3mm diameter stick.
- (2) Clean glue stuck on surface of Roller.
- (Note) Do not put Roller into water as it will damage bearings.

### 4.4 Assembling of Vacuum Rollers

- (1) Put Core back to Shaft and tighten fixing Bolt (M4).
- (2) Put Roller back to assembly of Core and Shaft.
- (3) Set positioning Knock Pin of Shaft by Knock Pin Hole of Base
- (4) Tighten fixing Nuts (M12) of Vacuum Roller.
- (5) Thrust Hose Joint into Pin. (Fig. 4)

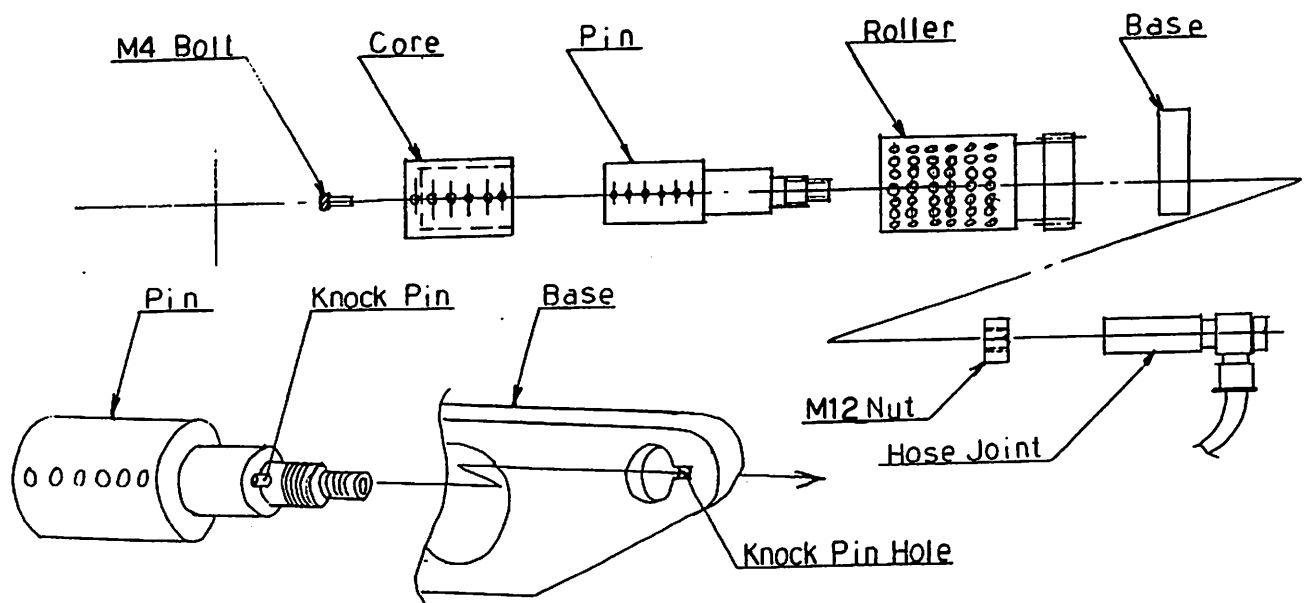


Fig. 4

## 5. ADJUSTING OF CLAMP GRIPPER

### 5.1 Adjusting gripping gap of signature

(1) Loosen fixing bolt (M10) of opening cam for gripper.

(2) - Moving cam upward makes gripping gap wider.

- Moving cam downward makes gripper gap narrower. (Sketch 1)

(Note) Normally 8mm is recommendable. (Sketch 3)

### 5.2 Adjusting gripping pressure

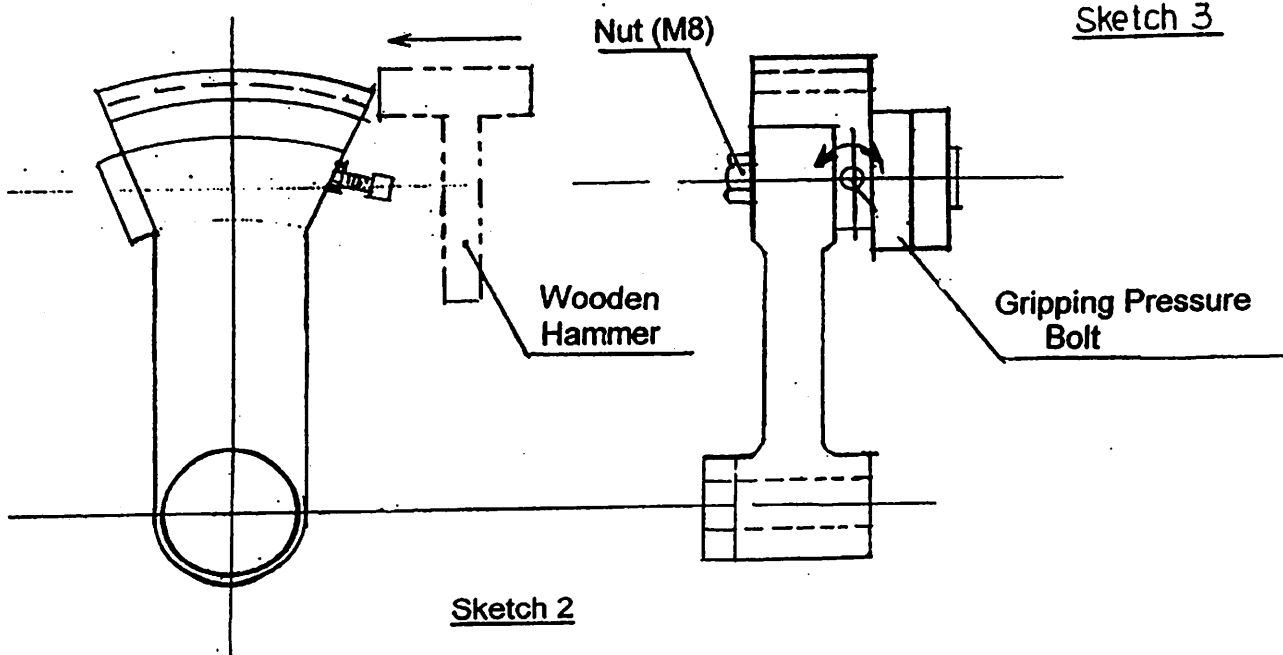
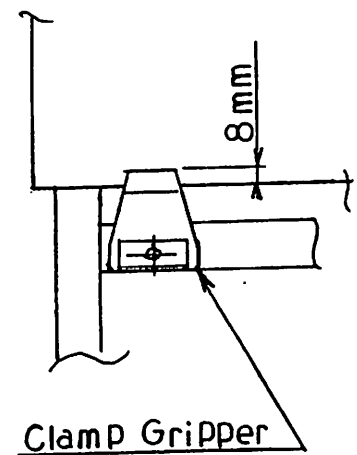
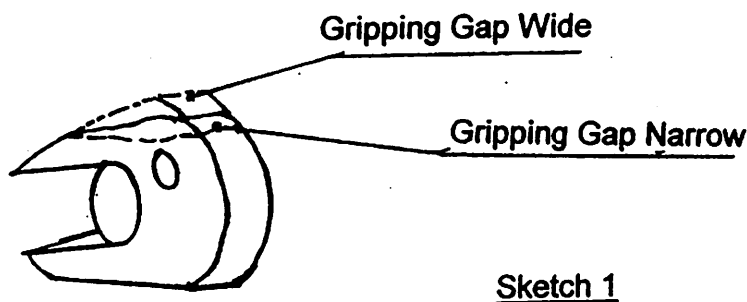
(1) Loosen nut (M8).

(2) - Turning gripping pressure bolt clockwise gives more pressure.

- Turning gripping pressure bolt anticlockwise gives less pressure. (Sketch 2)

(Note) In case less pressure is required taping gripper pressure gear slightly with wooden hammer after gripping pressure bolt is turned anticlockwise.

(Note) Recommendable gripper pressure is that one signature is pulled out tightly from both grippers.



## 6. GLUE APPLICATOR SEPARATOR

### 6.1 Function

3 pieces of Separator on the back of Glue Applicator are designed to separate signature from Glue Applicator.

(Note) In case tip of Separator is bent outward or inward, or there is gap between Separator and Glue Applicator jamming of signature will occur. (Sketch 1)

### 6.2 Repair of Separator

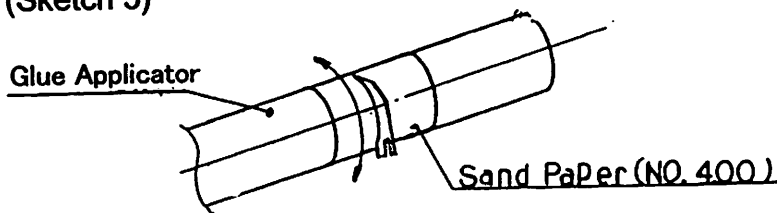
(1) Take out bolt (M3) from shaft and release fixing spring.

(2) Take out Separator from shaft. (Sketch 2)

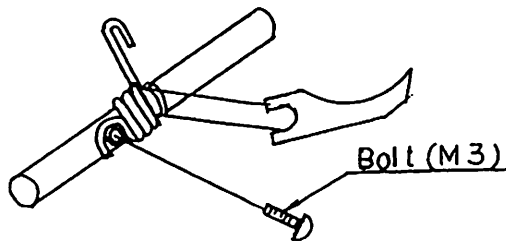
- In case tip of Separator is bent outward polish back of tip with sand paper (No.400) on flat and hard table. (Sketch 3)

- In case tip of Separator is bent inward place sand paper on surface of Glue Applicator and polish tip of Separator. (Sketch 4)

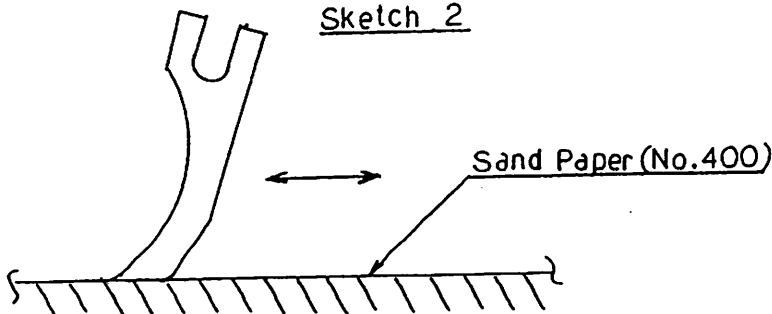
- In case there is gap between Separator and Glue Applicator loosen both fixing bolts (M5) for shaft and move shaft toward Glue Applicator. (Sketch 5)



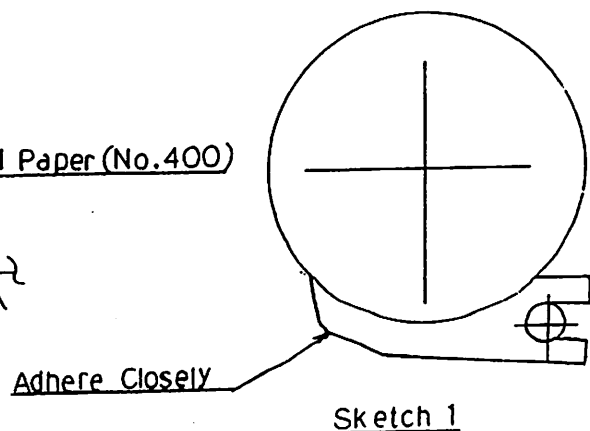
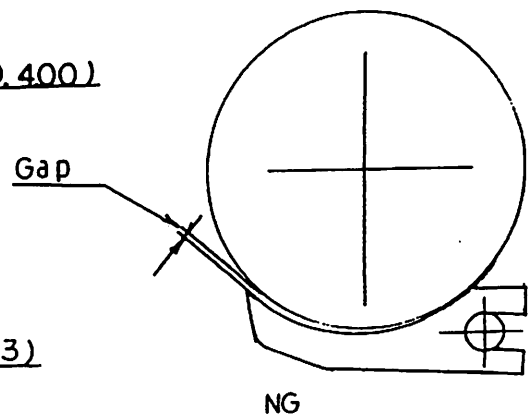
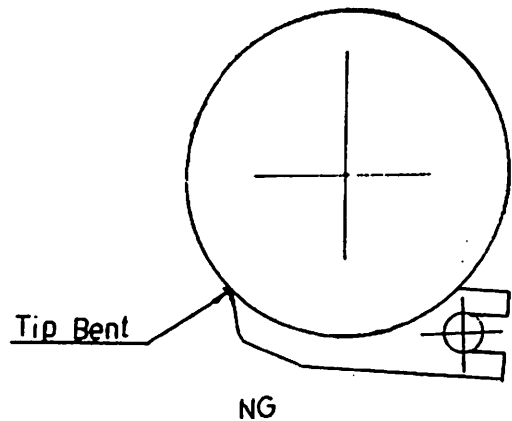
Sketch 4



Sketch 2



Sketch 3

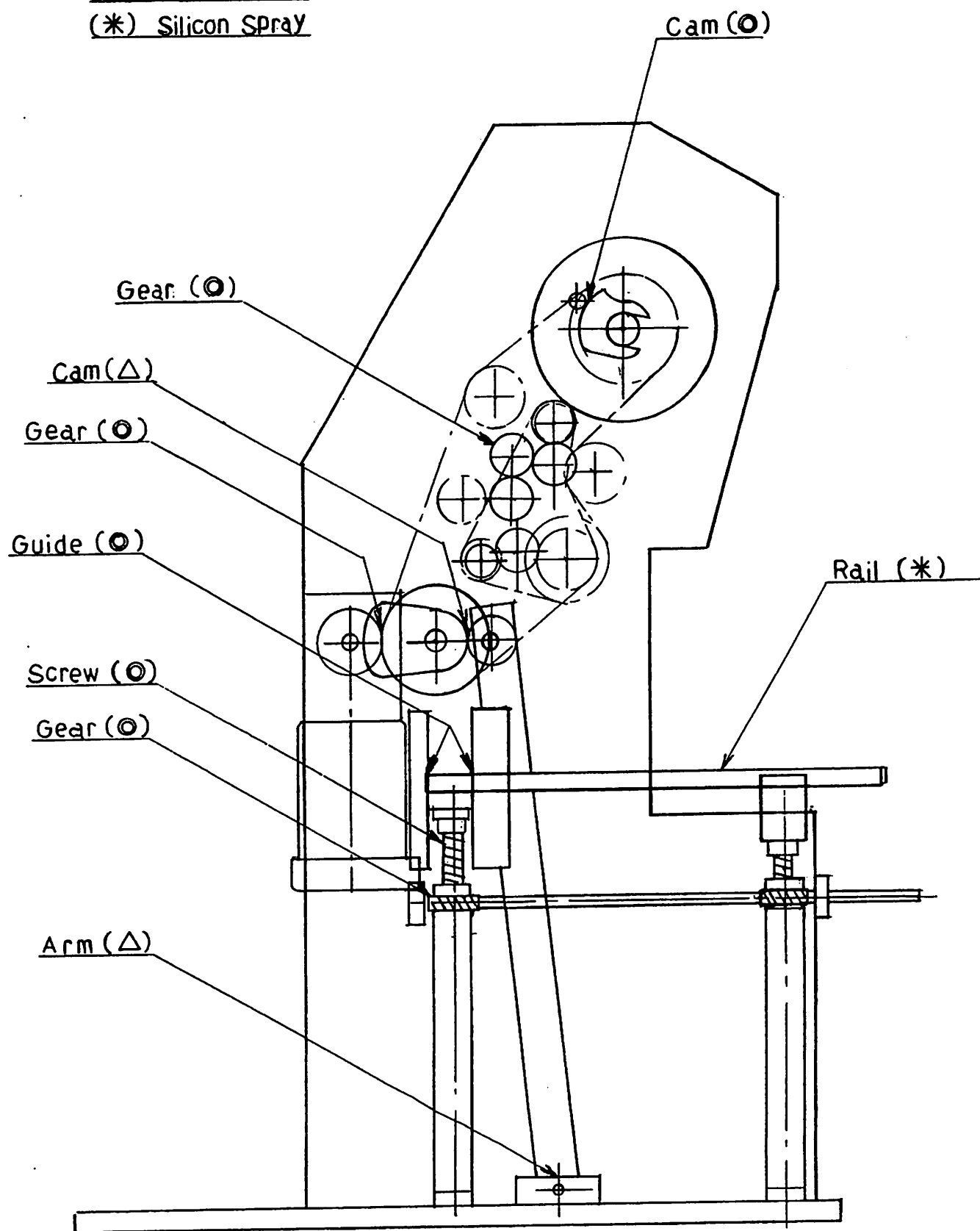


## 7. LUBRICATION

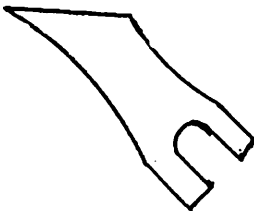
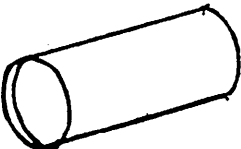
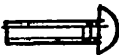
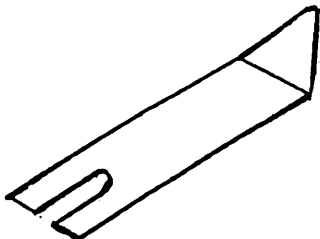
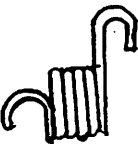
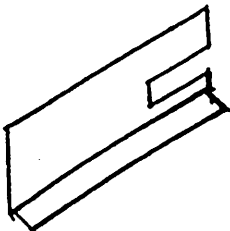
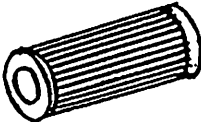
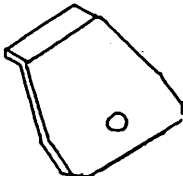
(△) Machine Oil

(◎) Grease

(\*) Silicon Spray



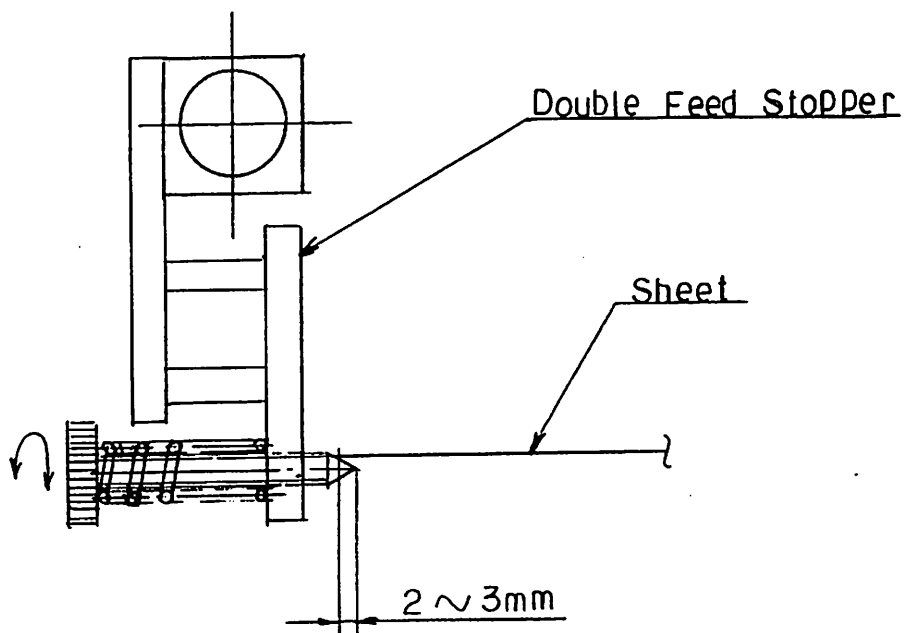
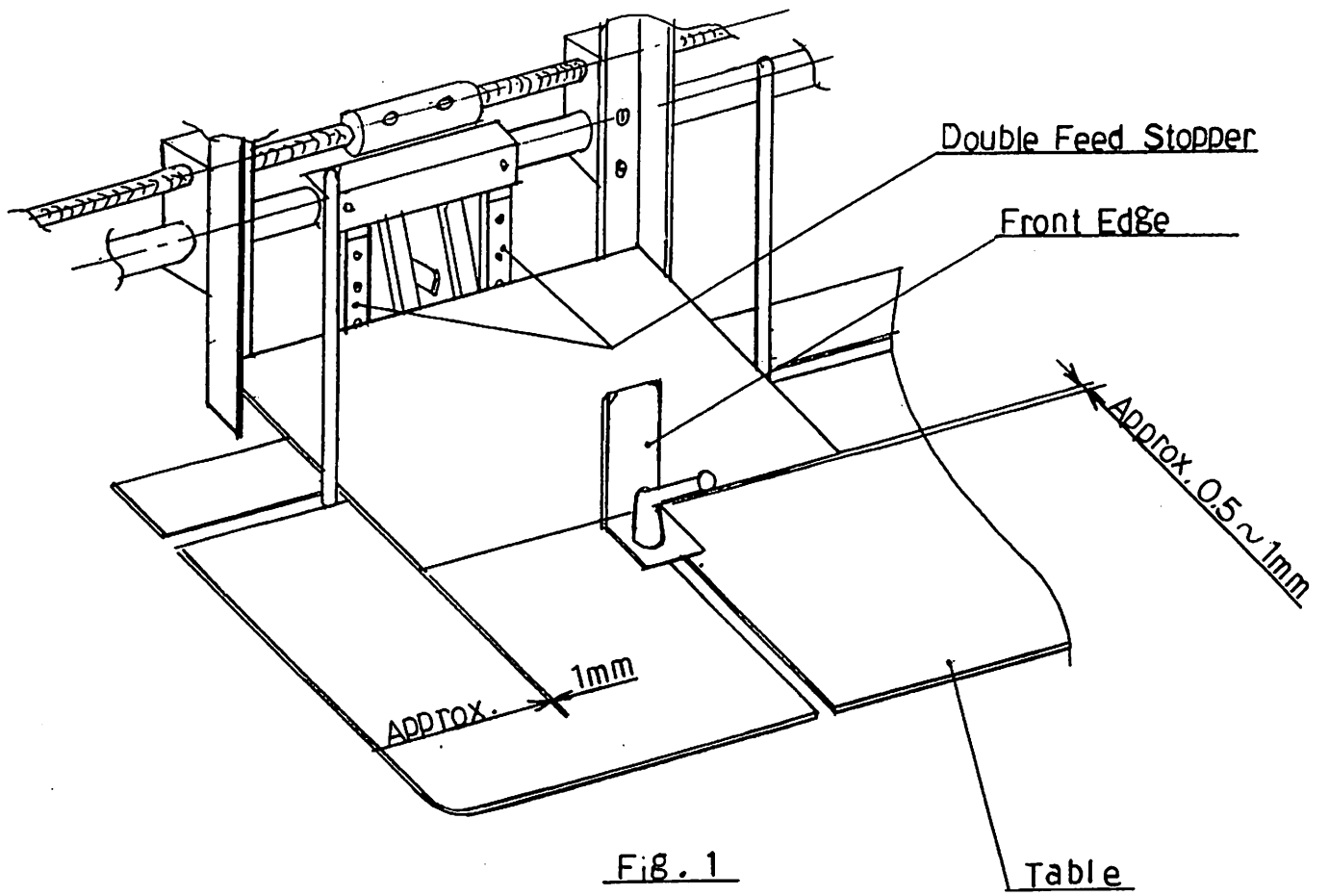
## 8. CONSUMABLE PARTS

|                                                                                                                     |                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <p>No. 1 Sucker</p>                | <p>No. 2 Glue Applicator Separator</p>    |
| <p>No. 3 Gripper Seat</p>          | <p>No. 4 Glue Roller Fixing Bolt</p>      |
| <p>No. 5 Return Stop Plate</p>   | <p>No. 6 Glue Roller Fixing Spring</p>  |
| <p>No. 7 Rebound Stop Plate</p>  | <p>No. 8 Pump Filter</p>                |
| <p>No. 9 Clamp Gripper</p>       |                                                                                                                             |

## 9. TROUBLE SHOOTING

| Trouble                                                     | Cause                                                                                                                                               | Solution                                                                                               |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Sheet Feeder</b>                                         |                                                                                                                                                     |                                                                                                        |
| 1. Sheet is not fed onto Drum.                              | Vacuum pressure is too low.                                                                                                                         | Clean airfilter of vacuum pump. Increase vacuum pressure up to 60kPa.                                  |
|                                                             | Position of Double Feed Stopper is too forward to Sheet(Signature).                                                                                 | Position Double Feed Stopper 2-3mm inside from edge of Sheet(Signature) (Fig. 2)                       |
|                                                             | Side Guide is too closely set against Sheet.                                                                                                        | Adjust Side Guide to have approx. 1mm gap between Sheet. (Fig. 1)                                      |
|                                                             | Sucker Rubber is worn out.                                                                                                                          | Replace Sucker Rubber.                                                                                 |
|                                                             | Sheets(Signatures) are piled too much on Table.                                                                                                     | Decrease pile height. Put silicon tape on Table to decrease friction between Sheet and Table.          |
| 2. Sheet is not gripped by Clamp Gripper.                   | Gripping gap is too narrow.                                                                                                                         | Adjust gripping gap to be approx. 8mm. (Page 11)                                                       |
| 3. Double sheets                                            | Double Feed Stopper is set too far. Gap between sheet and Front Guide is too wide. Gap between sheet and Side Guide is too wide.                    | Adjust each gap according to above instruction. (Fig. 2)                                               |
|                                                             | Blower pressure for Separator is too low.                                                                                                           | Adjust pressure to 20kPa. Clean Air Filter.                                                            |
| <b>Gluing Station</b>                                       |                                                                                                                                                     |                                                                                                        |
| 4. Glue is put on sheet unevenly.                           | Gap between Glue Applicator and Pressing Roller is too wide.                                                                                        | Adjust gap as to have thickness of one signature plus 0.2mm (Fig. 3)                                   |
| 5. Sheet is jammed between Glue Roller and Pressing Roller. | Glue Applicator Separator is bent outward or there is too wide gap between Glue Applicator and separator, where Signature is stopped or dropped in. | Take out Separator and repair it's shape by sand paper no. 400 according to instruction.(Page 9)       |
| 6. Glue is transferred to Pressing Roller.                  | Gap between Glue Applicator & Pressing Roller is too narrow so glue on signature is squeezed and put onto Pressing Roller.                          | Adjust gap between Glue Roller and Pressing Roller. (Fig. 3)                                           |
|                                                             | Glue on Glue Roller is too thick.                                                                                                                   | Same as above. (Fig. 3)                                                                                |
|                                                             | When glue is supplied to Glue Tray by hand and is overflown It drops on Pressing Roller                                                             | Do not supply glue to Glue Tray by hand too much at a time. Install Glue Tank and supply glue from it. |

|                                                                                                                                             |                                                                                                                                                 |                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. Signature drops down slantingly due to weak vacuum power of Vacuum Roller. (Thin and short width signature tends to be less vacuumized). | Power of Vacuum Pump is too low.                                                                                                                | Clean Air Filter. Adjust airpressure. Up to 55kPa.                                                                                                                   |
|                                                                                                                                             | Vacuum air holes of Vacuum Roller are choked.                                                                                                   | Dismantle Vacuum Roller and get rid of paper dust, dried glue, etc. (Fig. 4)                                                                                         |
| 8. Glued signature does not reach down to bottom. (Photocell detects signature trouble and stops machine).                                  | Width of Side Plate is narrower than signature size.                                                                                            | Width of Side Plate should be same or wider by 0.5mm than signature width. (Fig. 5)                                                                                  |
|                                                                                                                                             | Sheet is thin and curled and so Sticks to block.                                                                                                | Decurl signature.                                                                                                                                                    |
|                                                                                                                                             | Glue is stuck on Pressing Plate.                                                                                                                | Clean glue on Pressing Plate and spray silicone on it.                                                                                                               |
|                                                                                                                                             | Return Stop Plate is deformed and does not stop a page of pressed signature and then the next signature drops on the page and stops on the way. | Replace Return Stop Plate with a new one. For thin and soft signatures put adhesive tape on upper Return Stop Plate to keep constant bulge from Side Guide. (Fig. 6) |
| 9. Spine of finished book is not equal. (some signatures are glued inward).                                                                 | Rebound Stop Plate (R and L) are damaged and break signature. Then the plates do not stop rebound of signatures.                                | Replace Rebound Stop Plate with a new one. (Fig. 5)                                                                                                                  |
|                                                                                                                                             | Gap between Side Plate and signature is too wide and Return Stop Plate does not work properly.                                                  | Adjust gap between Side Plate and signature as mentioned above. (Fig. 5)                                                                                             |
| 10. Spine of finished book is not square (skewed).                                                                                          | Glue is put too much and while pressed signatures tend to shift upward.                                                                         | Adjust thickness of glue according to quantity of absorption of paper.                                                                                               |
|                                                                                                                                             | Signature is not firmly folded and spine is not sharp enough.                                                                                   | Press signatures again before feeding into machine.                                                                                                                  |
|                                                                                                                                             | Pressing Spring is set too strong and glued block is disturbed by Press Stop Plate and shift upward.                                            | Adjust Pressing Spring. (Fig. 7)                                                                                                                                     |



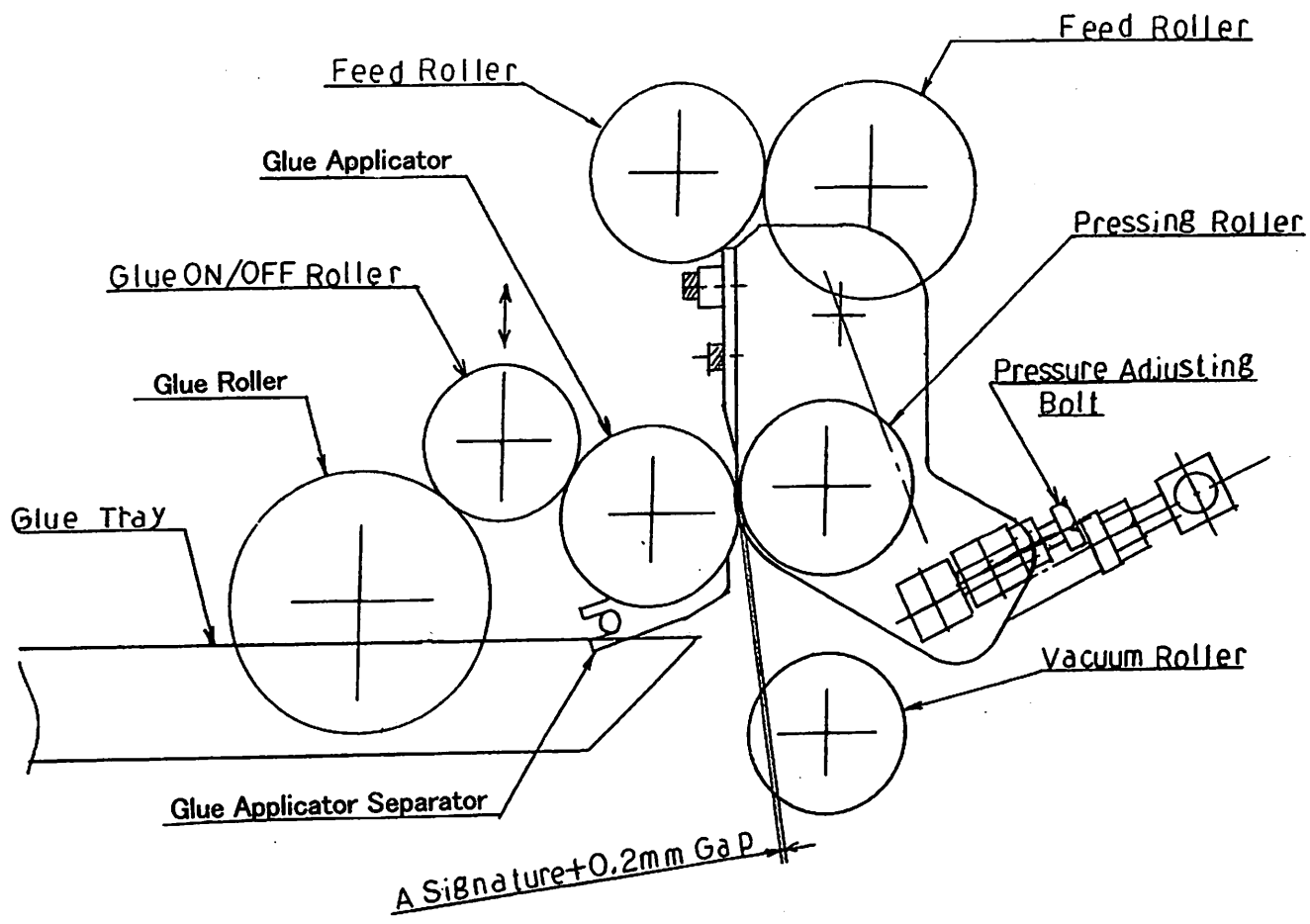


Fig. 3

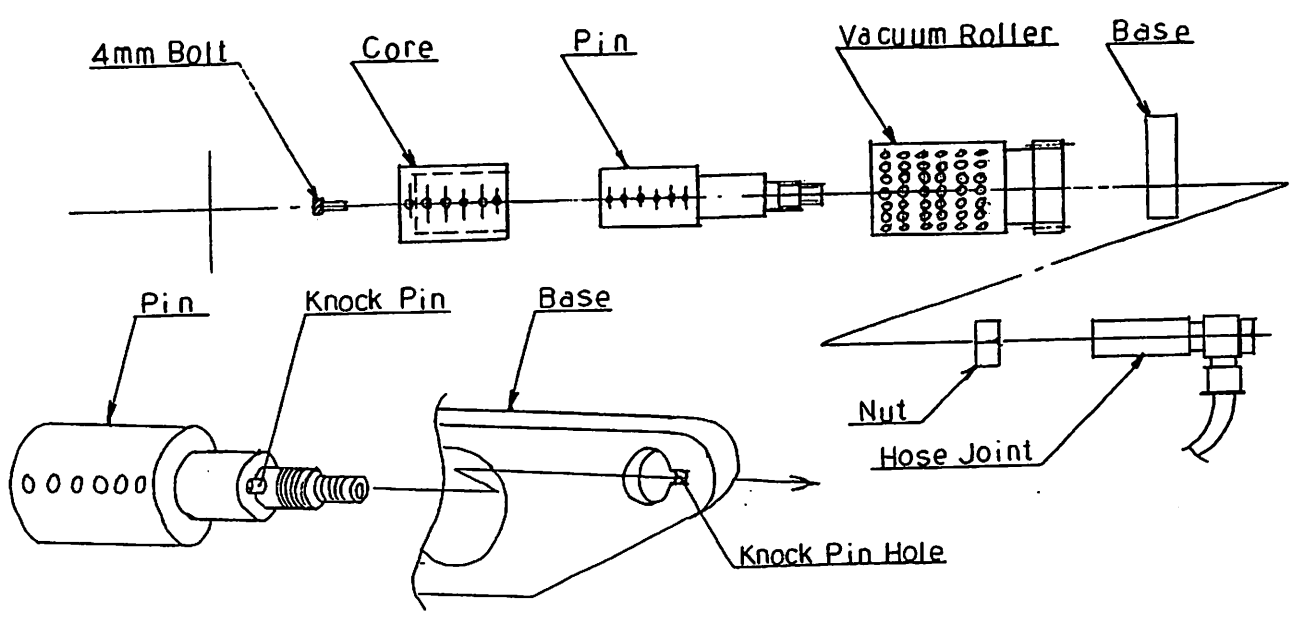


Fig. 4

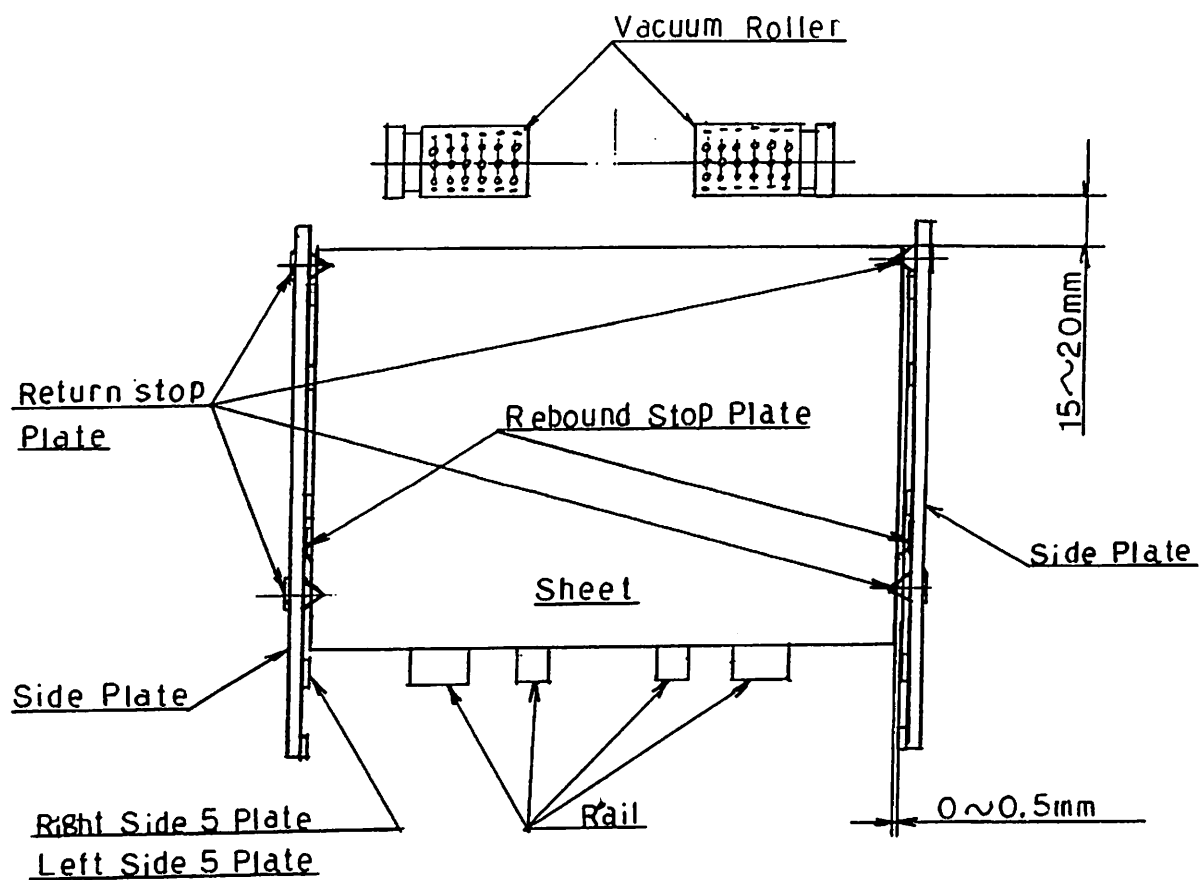


Fig. 5

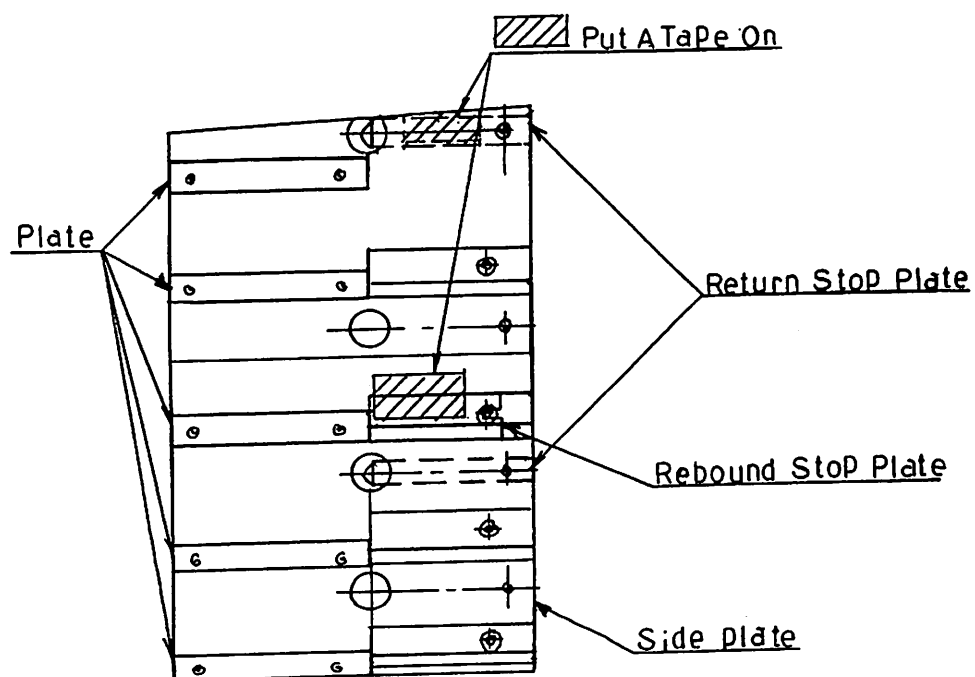


Fig. 6

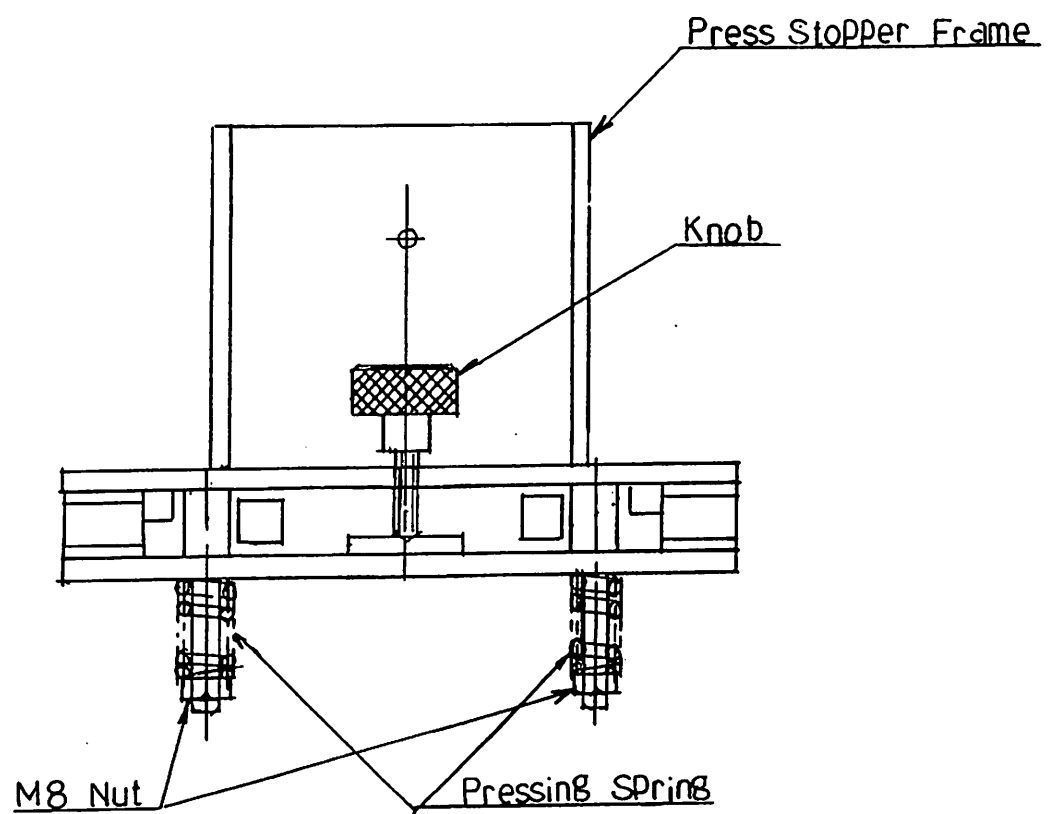
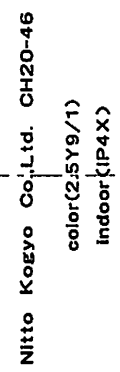


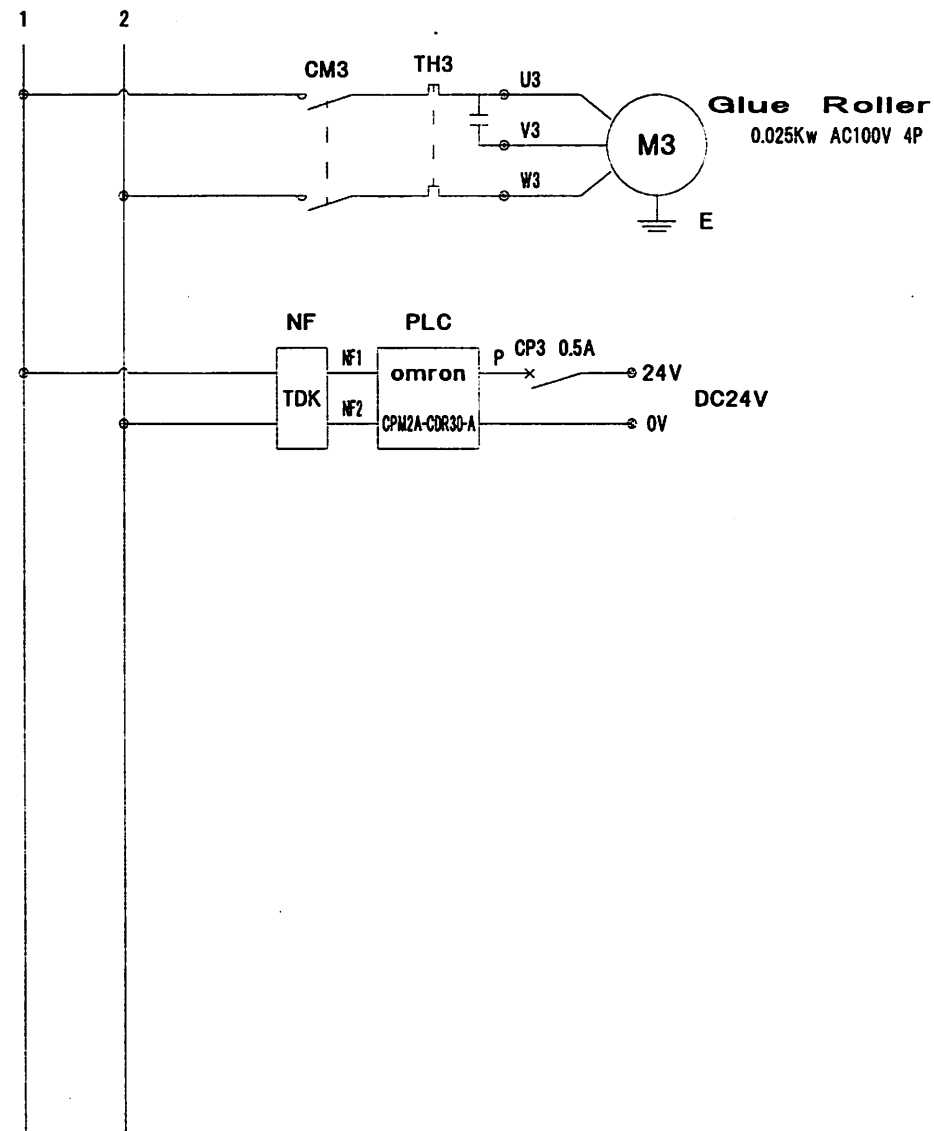
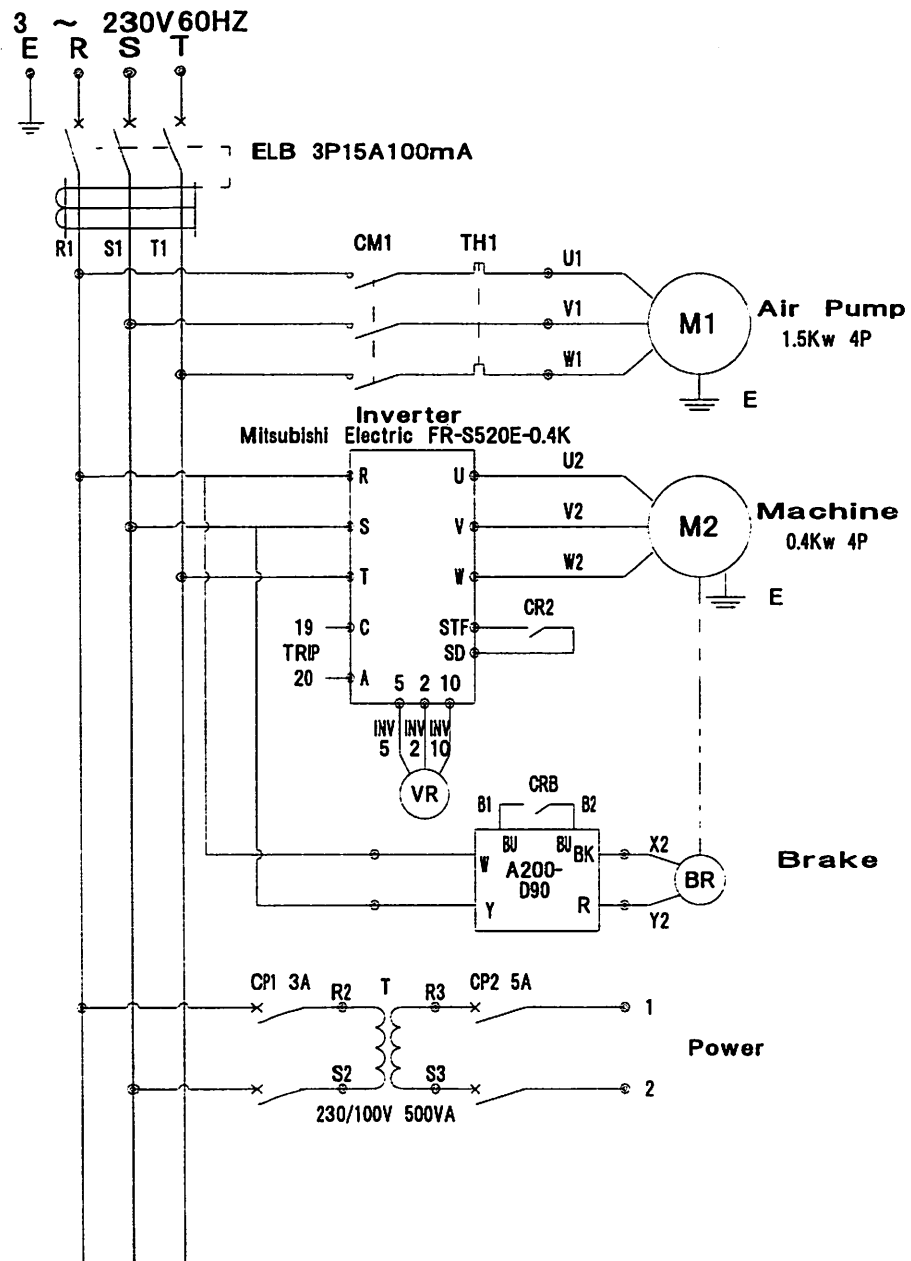
Fig. 7

## 10. WIRING DIAGRAM

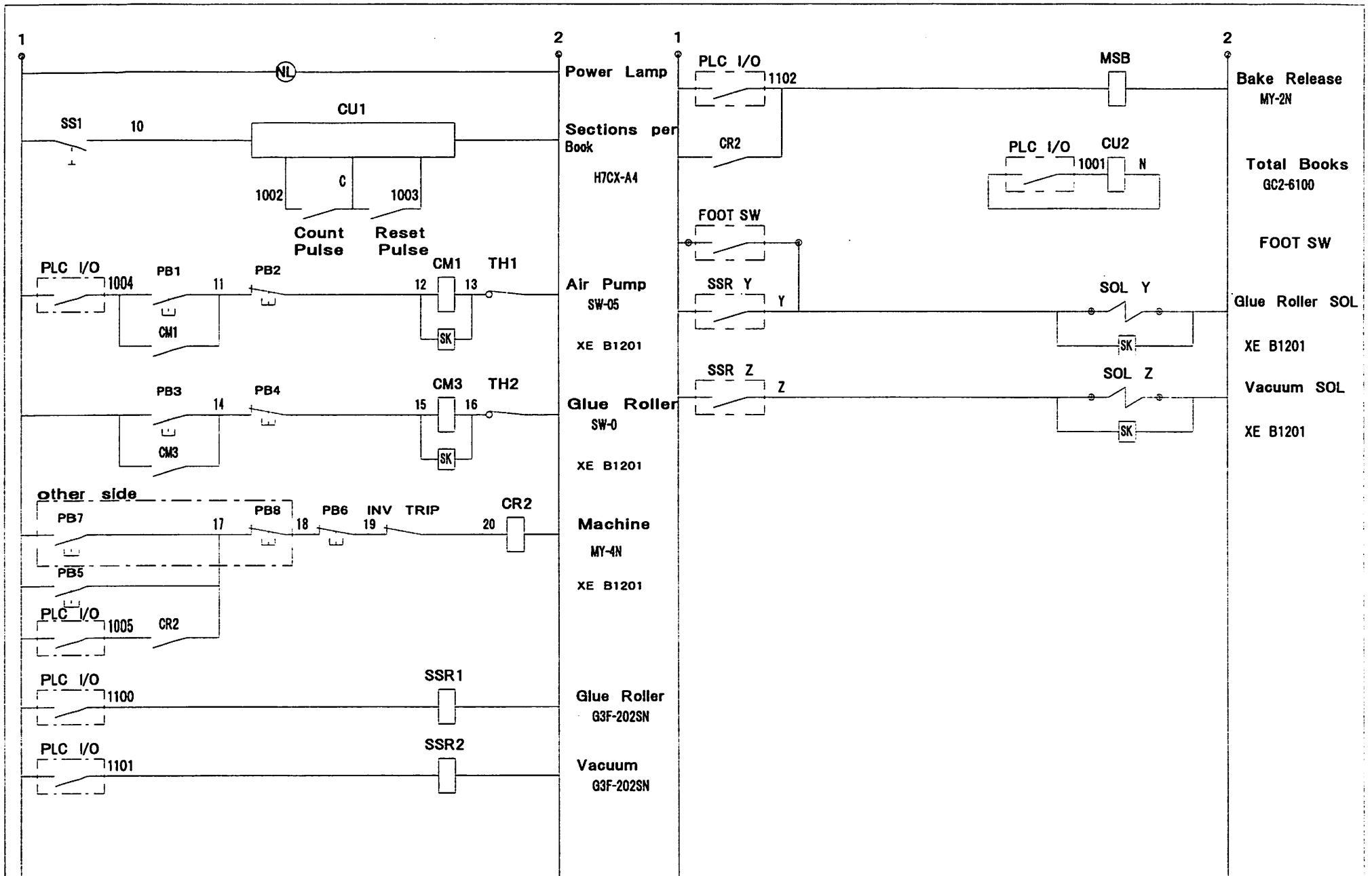


|        |  |    |        |                                    |                     |
|--------|--|----|--------|------------------------------------|---------------------|
| change |  | 01 | custom |                                    | 2007<br>date<br>4/2 |
| change |  |    | name   | Book Binding Machine control board | designer<br>Uemura  |

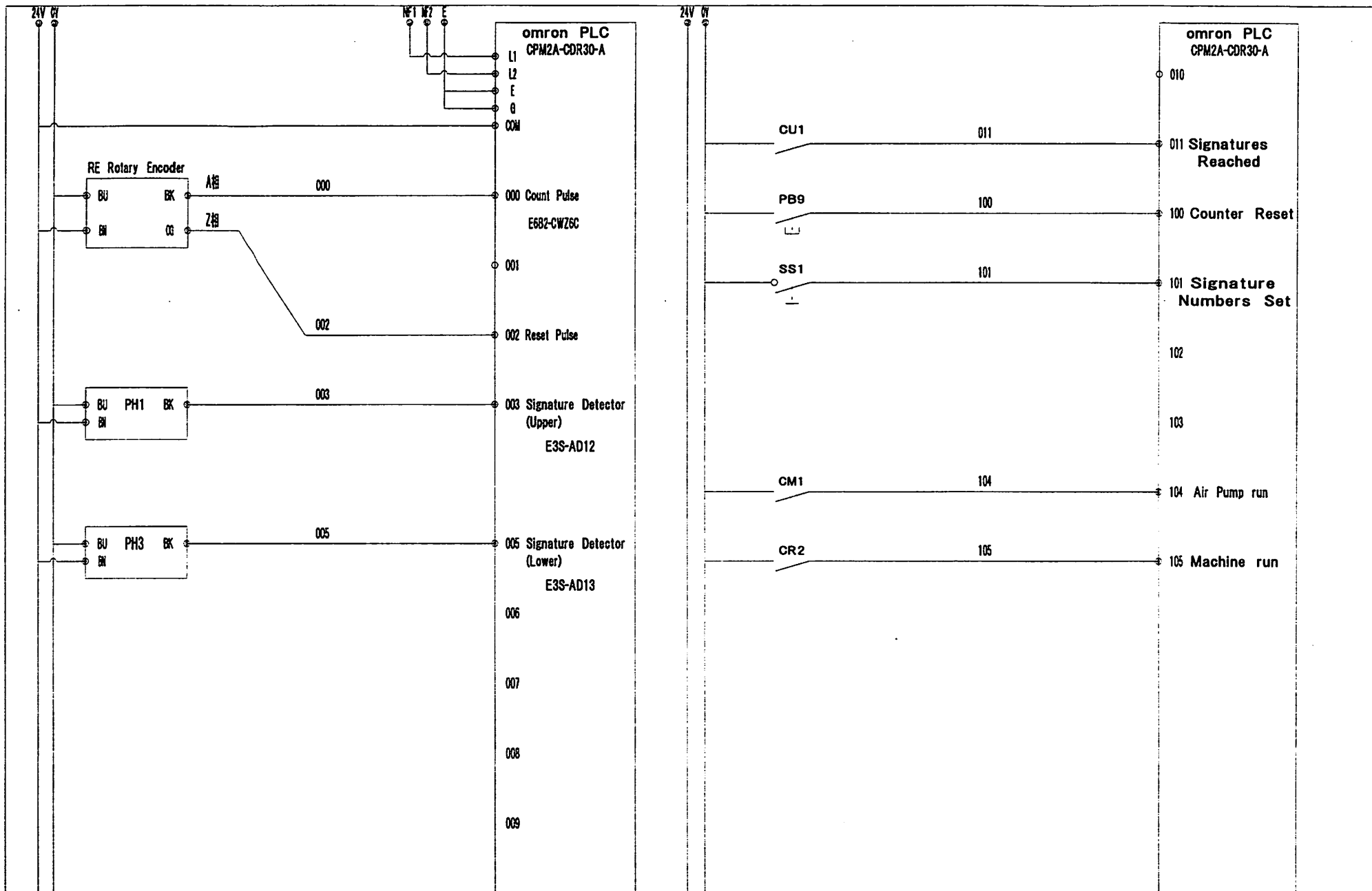




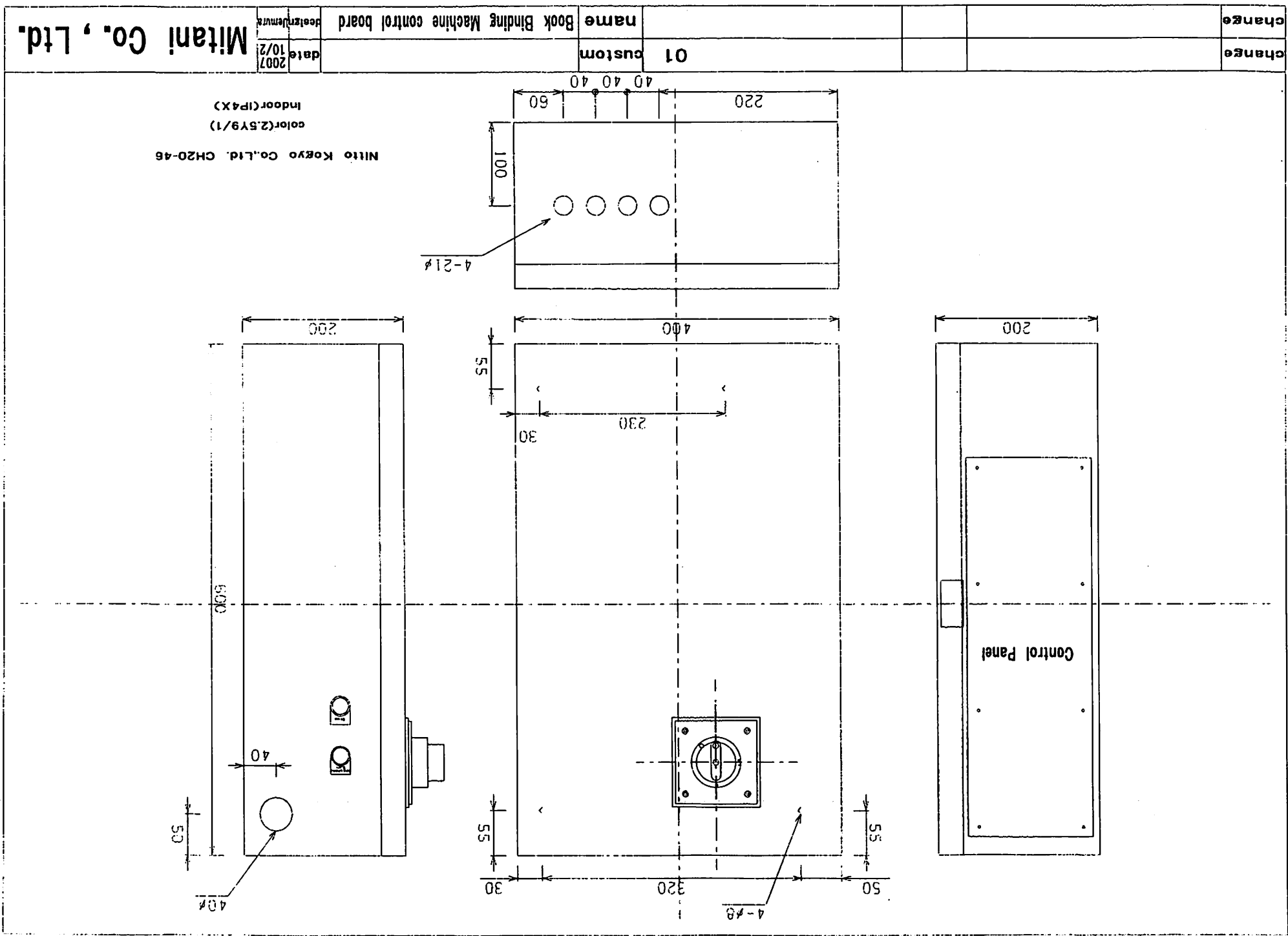
|        |  |  |    |        |                                    |          |          |                  |
|--------|--|--|----|--------|------------------------------------|----------|----------|------------------|
| change |  |  | 03 | custom |                                    | date     | 2007/4/2 | Mitani Co., Ltd. |
| change |  |  |    | name   | Book Binding Machine control board | designer | Jemura   |                  |

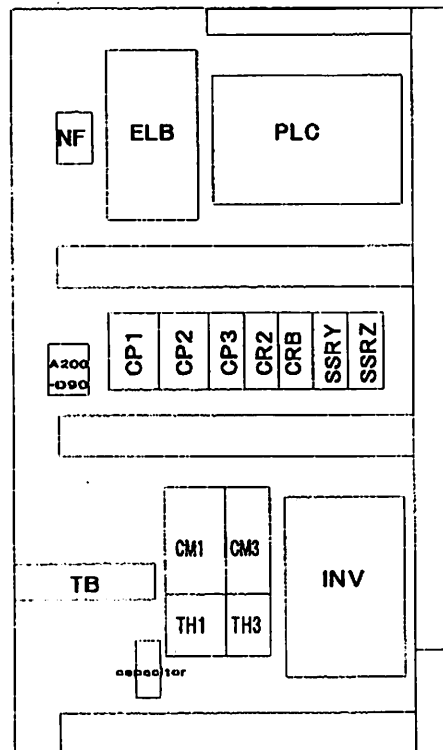
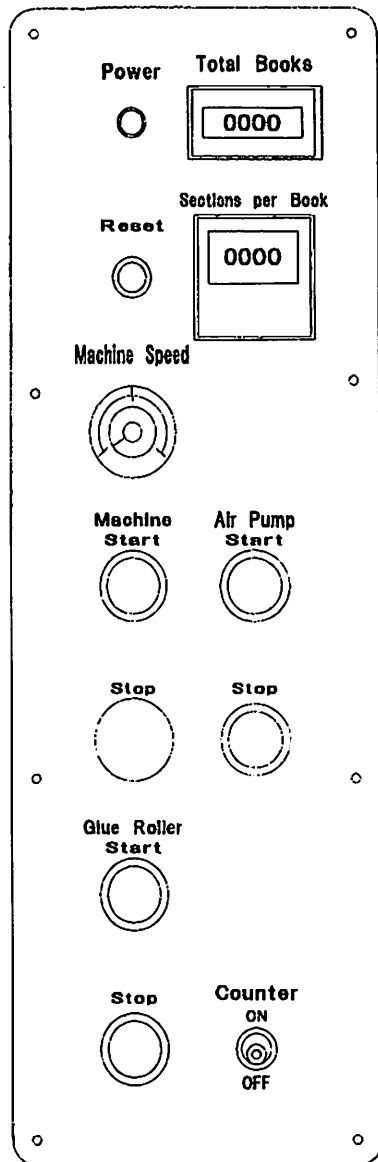


|        |  |  |    |        |                                    |        |          |                  |
|--------|--|--|----|--------|------------------------------------|--------|----------|------------------|
| change |  |  | 04 | custom |                                    | date   | 2007/4/2 | Mitani Co., Ltd. |
| change |  |  |    | name   | Book Binding Machine control board | design | Jemura   |                  |



|        |  |    |        |                                    |          |                  |
|--------|--|----|--------|------------------------------------|----------|------------------|
| change |  | 05 | custom | date                               | 2007/4/2 | Mitani Co., Ltd. |
| change |  |    | name   | Book Binding Machine control board | designer |                  |



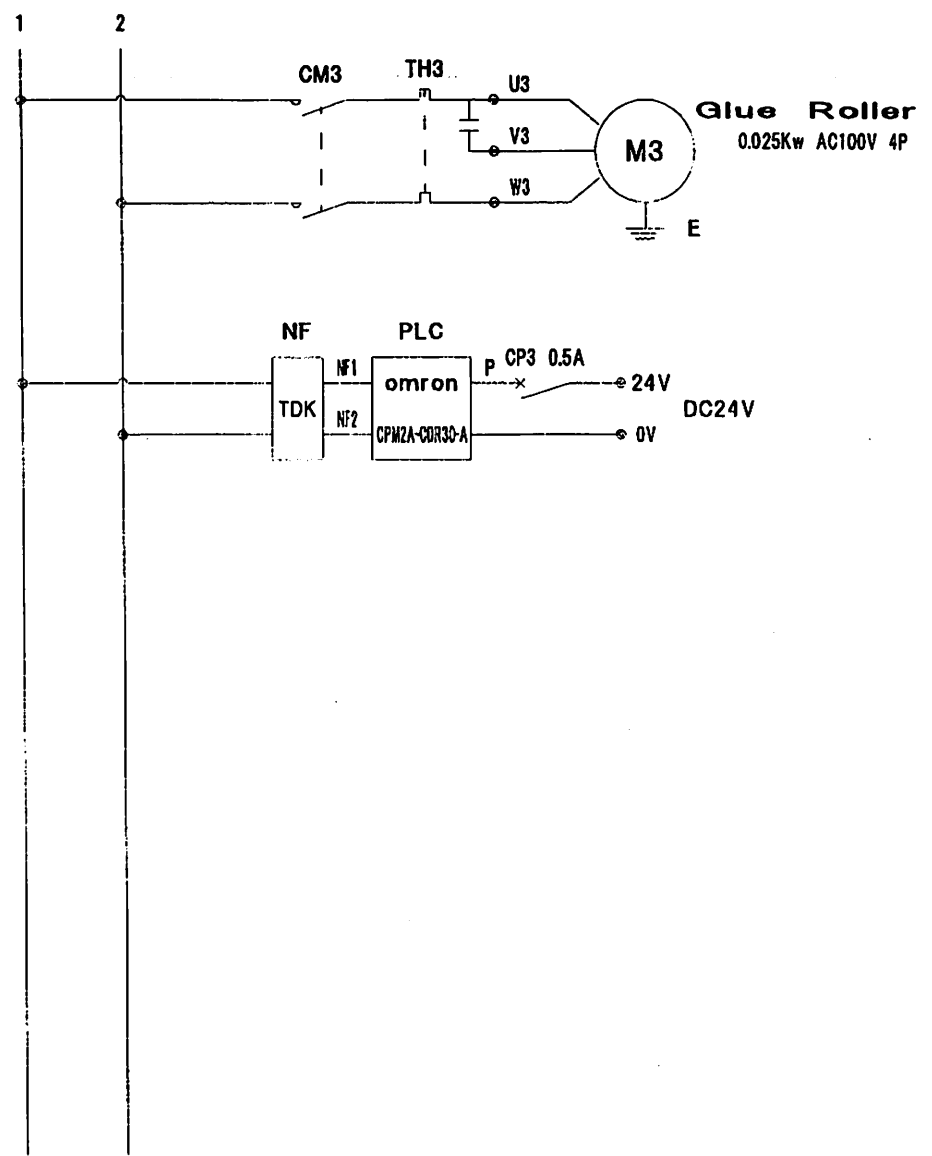
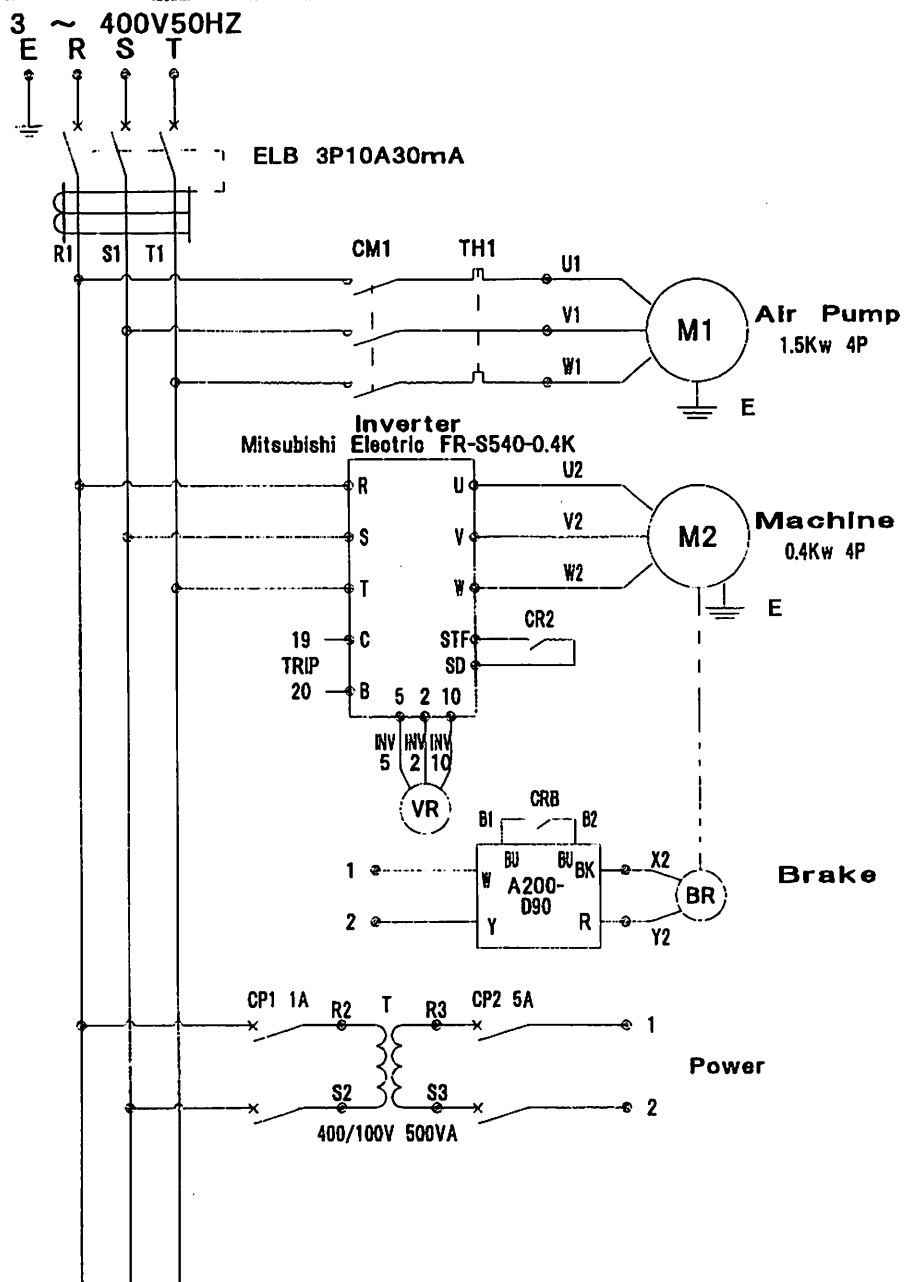


**acrylic resin t=5mm**

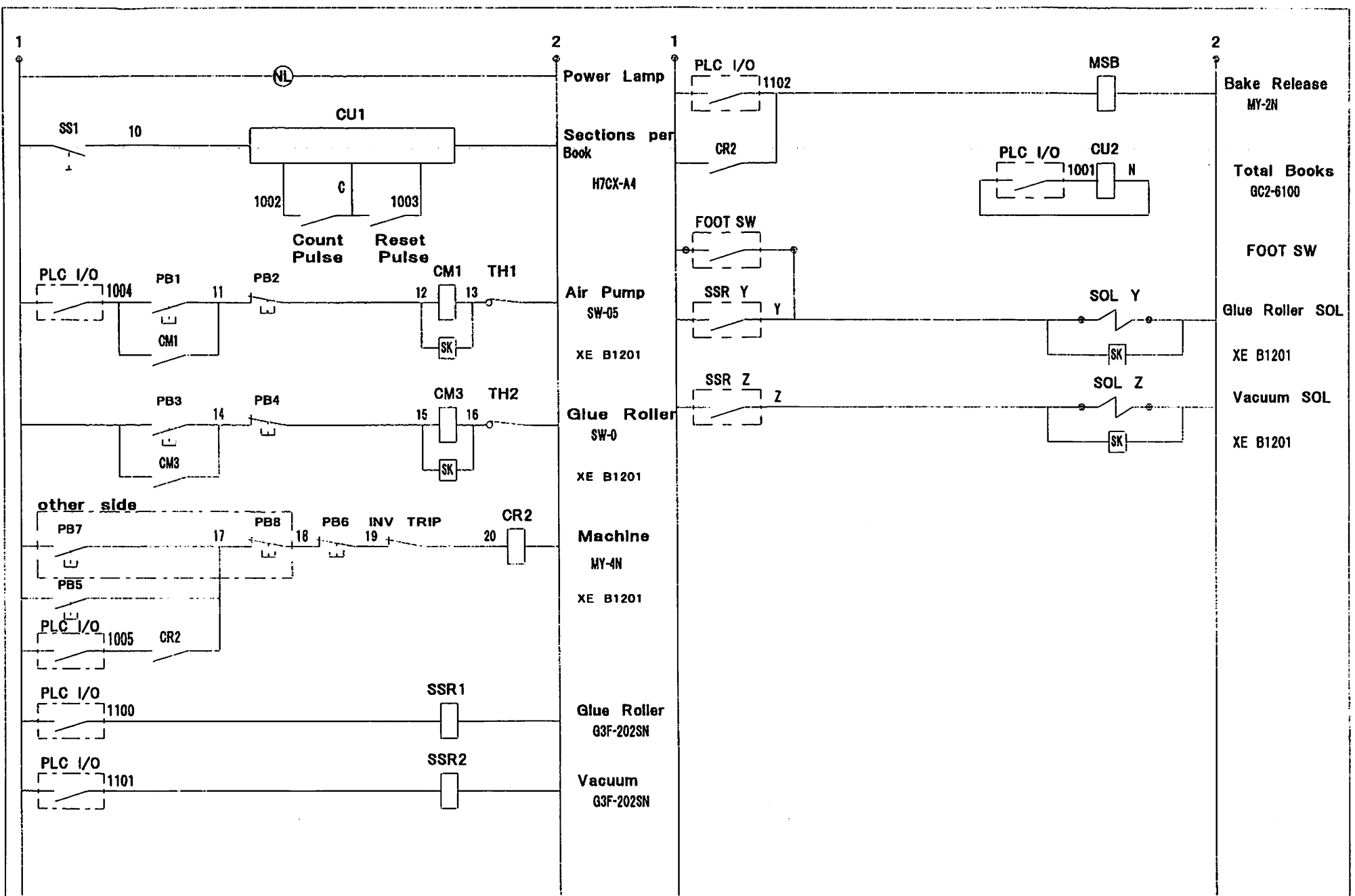
**white background:black letter**

[illegible]

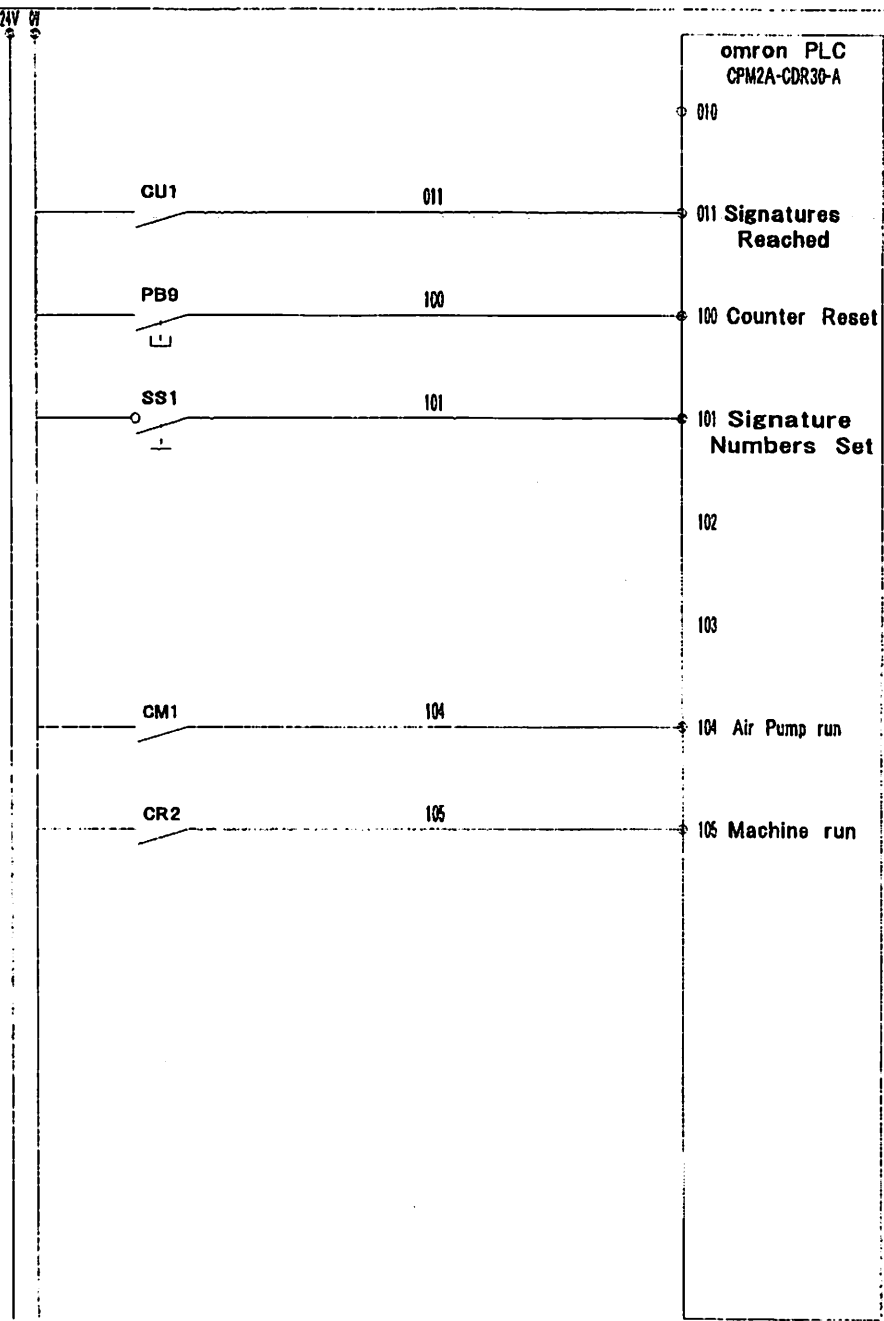
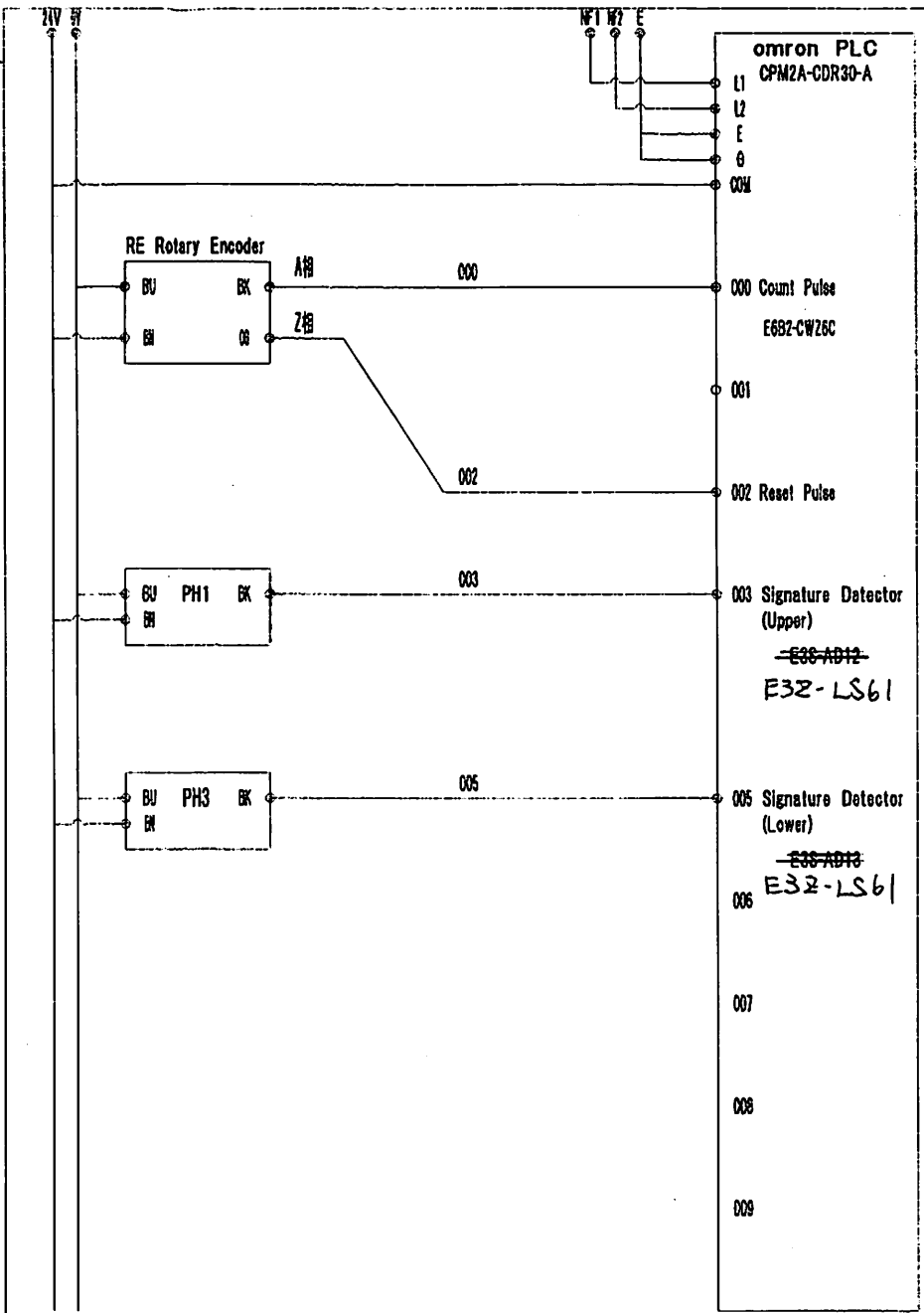
|        |  |  |    |        |                                    |          |           |                   |
|--------|--|--|----|--------|------------------------------------|----------|-----------|-------------------|
| change |  |  | 02 | custom |                                    | date     | 2007/10/2 | Mitani Co. , Ltd. |
| change |  |  |    | name   | Book Binding Machine control board | designer | Uemura    |                   |



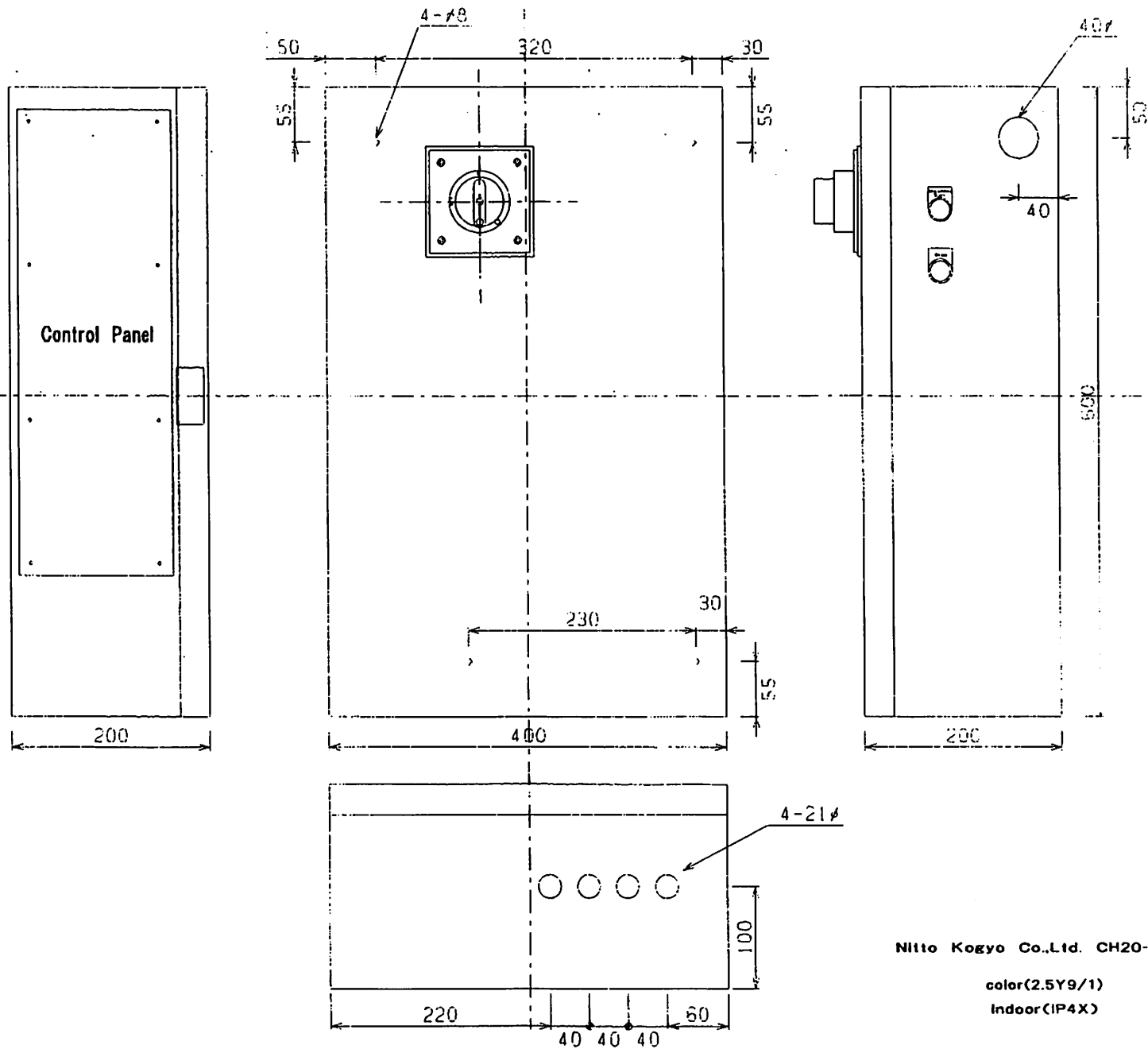
|        |  |  |    |        |                                    |        |           |                  |
|--------|--|--|----|--------|------------------------------------|--------|-----------|------------------|
| change |  |  | 03 | custom |                                    | date   | 2007/10/2 | Mitani Co., Ltd. |
| change |  |  |    | name   | Book Binding Machine control board | design | Uemura    |                  |



|        |  |  |    |        |                                    |          |              |                  |
|--------|--|--|----|--------|------------------------------------|----------|--------------|------------------|
| change |  |  | 04 | custom |                                    | date     | 2007<br>10/2 | Mitani Co., Ltd. |
| change |  |  |    | name   | Book Binding Machine control board | designer | Demura       |                  |



|        |  |  |    |        |                                    |        |           |                  |
|--------|--|--|----|--------|------------------------------------|--------|-----------|------------------|
| change |  |  | 05 | custom |                                    | date   | 2007/10/2 | Mitani Co., Ltd. |
| change |  |  |    | name   | Book Binding Machine control board | design | Jemura    |                  |



Nitto Kogyo Co., Ltd. CH20-46

color(2.5Y9/1)

Indoor(IP4X)

|        |  |  |    |        |                                    |           |                  |
|--------|--|--|----|--------|------------------------------------|-----------|------------------|
| change |  |  | 01 | custom | date                               | 2007/10/2 | Mitani Co., Ltd. |
| change |  |  |    | name   | Book Binding Machine control board | designer  |                  |

