

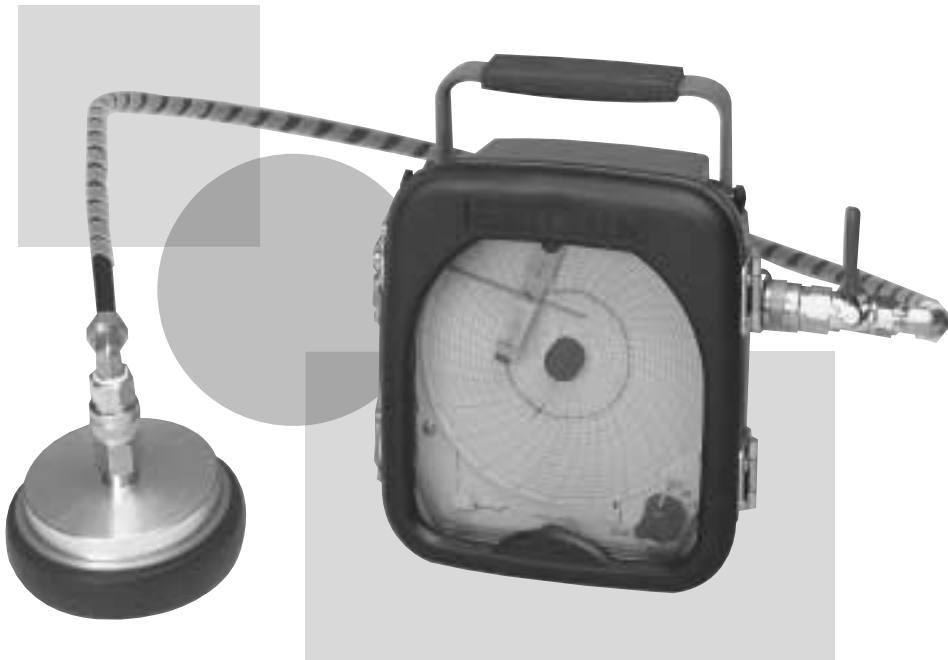
# FUJI PORTABLE WATER PRESSURE RECORDER

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## **FJN-501** (A TYPE & C TYPE)

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### INSTRUCTION MANUAL



Instruments for the location of underground utilities and water leaks.

**FUJI TECOM INC.**

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## **WARRANTY**

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Fuji Warranty Period is one year (12 months) after the day when you have purchased the FJN-501 portable Water Pressure Recorder from us or a Fuji distributor.

When your FJN-501 Water Pressure Recorder is malfunctioned during your ordinary use or handling, it is repaired at free of charge but within the Warranty Period.

You are suggested to send the malfunctioned FJN-501 Water Pressure Recorder to us or a Fuji distributor without delay within the Warranty Period. In that case, please mention the defective condition in details as possible so as to shorten the period of repairing work.












After the Warranty Period, we or Fuji distributor take the liberty to require the charge incurred to repair.

## CAUTIONS

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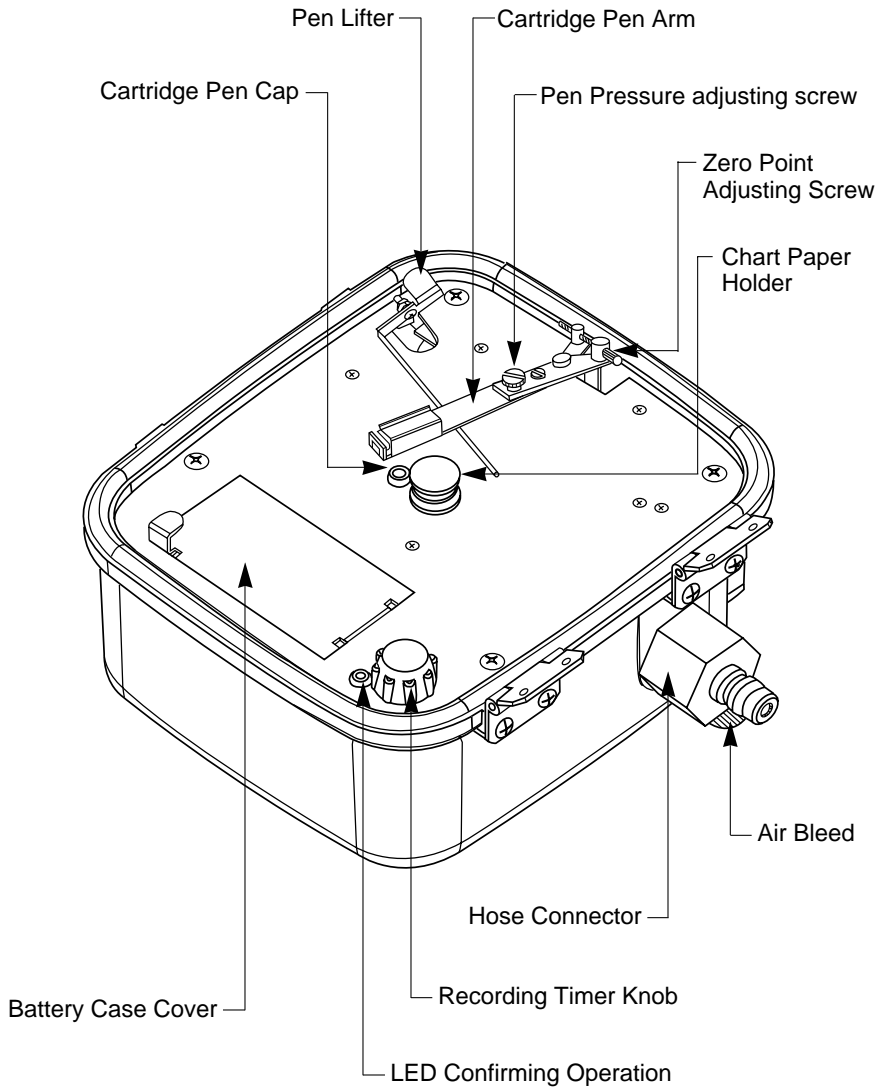
- (1) When attaching the Fuji Coupling to the Outlet of Fire-hydrant, confirm if the three nails inside the Coupling are bit at the Outlet of Fire-hydrant.
- (2) Do not bend the Connecting House forcibly.
- (3) Operate the FJN-501 Pressure Recorder within the range of Chart Paper Disc showing its ranges such as 0.5Mpa, 1.0Mpa, 1.4Mpa and 2.0Mpa.
- (4) When opening the Front Cover, push down the Front Cover by hand first and then unfasten the Catch Clip.
- (5) When removing the Fuji Coupling, close the Valve of Fire-hydrant first and then open the Air Bleed of FJN-501 Water Pressure Recorder. Remove the Fuji coupling after reducing the inside pressure to Zero.
- (6) When the Front Cover is closed, the FJN-501 Water Pressure Recorder is in the condition of waterproof completely. Without closing the Front Cover perfectly, do not sink it in the water.
- (7) Turn the Recording Timer Knob slowly to choose the Recording Time such as 4, 12, 24, 72, 168 hours and other minutes.
- (8) Confirm if the Chart Paper Disc is fixed firmly with the Holder and then commence the operation of FJN-501 Water Pressure Recorder. The Chart Paper Disc mounted loosely causes the wrong recording time.
- (9) When finished the operation, insert the Pen Point in the Cartridge Pen Cap located at the Axis of FJN-501 Pressure Recorder or remove it and keep in a box avoiding its drying.
- (10) Do not give a strong shock to the Main Unit.

# 1. COMPOSITION

<p>FJN-501 Main Unit</p> 	<p>Fuji Coupling</p> 	<p>Coupler of Fuji Coupling</p> 
	<p>Cartridge pen</p> 	<p>Leather packing</p> 
<p>13mm Dia. Faucet Adaptor</p> 	<p>Connecting Hose. Type No.4</p> 	
<p>Alkaline Dry Battery (UM-3 1.5V × 2)</p> 	<p>Carrying Case</p> 	
<p>Chart Paper Disc (100 sheets per package) *One package of it is included at free of charge.</p> 	<p><b>*OPTION</b> Connecting Hose. Type No.1</p> 	

## 2. NAME OF PART

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### 3. PRESSURE RANGE AND MEASURING TIME

(1) PRESSURE RANGE (4 different units)

FJN-501 Pressure Recorder is consisted of the four different units of Pressure Range for choice.

- 1 = 0.5 Mpa
- 2 = 1.0 Mpa
- 3 = 1.4 Mpa
- 4 = 2.0 Mpa

(2) MEASURING TIME (2 different types)

FJN-501 Pressure Recorder is consisted of the two different types of Measuring Time for choice.

Type A has the five different Measuring Times selected with the Recording Timer Knob.

- 1 = 4 hours
- 2 = 12 hours
- 3 = 24 hours
- 4 = 72 hours
- 5 = 168 hours

Type C has the three different Measuring Times selected with the Recording Timer Knob.

- 1 = 15 Minutes
- 2 = 30 Minutes
- 3 = 60 Minutes

The above differences can be referred by the following table.

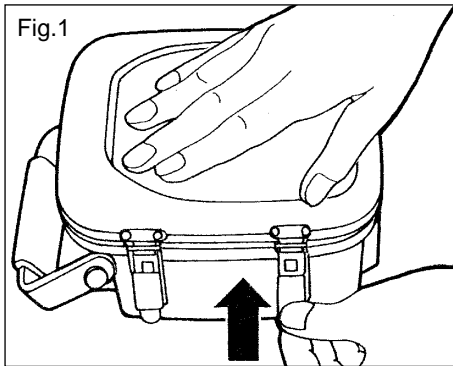
Pressure \ Time	15 min	30 min	60 min	4h	12h	24h	72h	168h
0.5 MPa	×	×	×	○	○	○	○	○
1.0 MPa	×	×	×	○	○	○	○	○
1.4 MPa	×	×	×	○	○	○	○	○
2.0 MPa	○	○	○	○	○	○	○	○

NOTE : Customers are required to choose its Pressure Range and Measuring Time such as the way "Type A and 1.4 Mpa"

## 4. HOW TO OPERATE

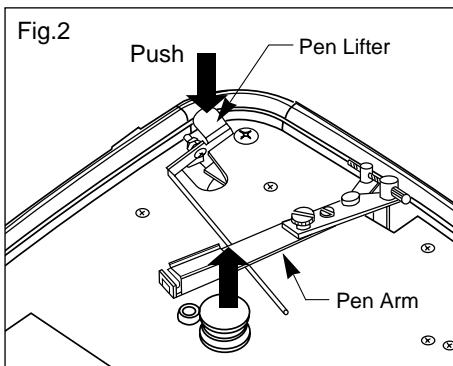
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### 4 - 1 HOW TO SET UP THE CHART PAPER DISC.



1. As shown by the Fig.1, Push down the Cover with hand and unfasten the Catch Clip by lifting the Clip as shown by the Arrow mark.

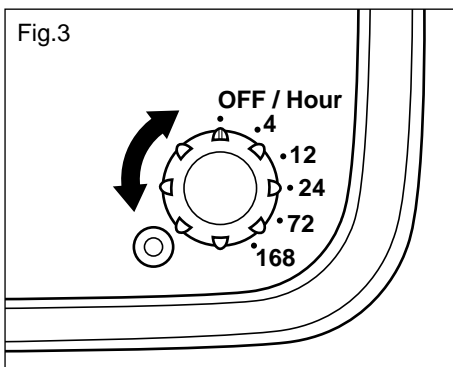
Open the Front Cover.



2. Push down the Pen Lifter to lift up the Pen Arm as shown by the two Arrow marks in the Fig.2.

**NOTE :**

Remove the Used Chart Paper Disc and change it with new one.

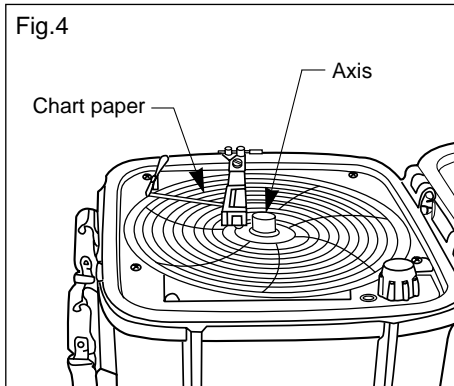


3. Before mounting the Chart Paper Disc, confirm the residual battery power.

Turn the Timer Knob to the point of 4 Hour Recording Position and confirm if the LED will repeat ON and OFF.

When the LED does not light, change the Batteries right away.  
Refer to 4-7 HOW TO CHANGE THE BATTERY Page 15.

## 4. HOW TO OPERATE

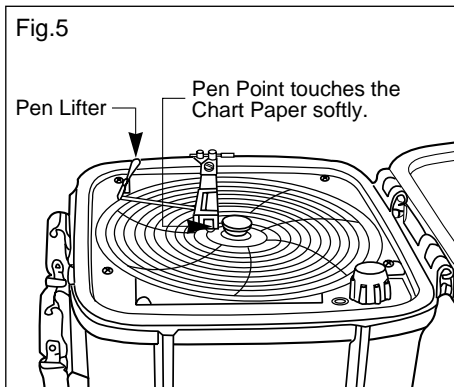


4. Remove the Chart Paper Holder from the Axis and mount the Chart Paper Disc.

**NOTE :**

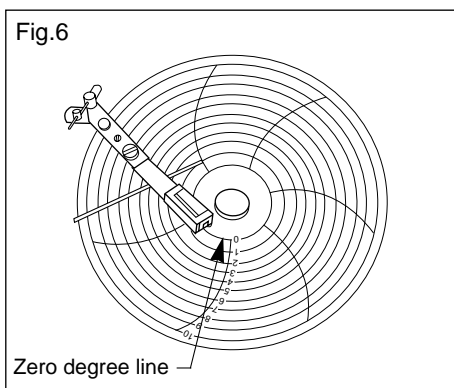
Confirm the Recording Time in need

- Such as :
- 4 hours
  - 12 hours
  - 24 hours
  - 72 hours
  - 168 hours



5. Remove the Cap of Cartridge Pen and fit it into the Pen Holder of Pen Arm.

Release the Pen Lifter and put down the Pen Arm so that the Pen Point will touch the Chart Paper softly as shown by the Fig.5.

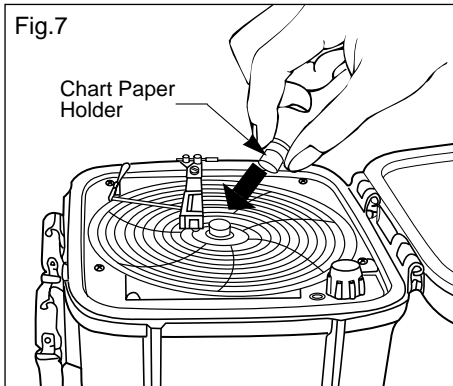


6. Confirm if the Pen Point is located on the line of Zero Degree as shown by the Fig.6.

When the Pen Point does not come on the line of Zero Degree, adjust its position.

Refer to 4-2 HOW TO MAKE THE ZERO POINT ADJUSTMENT.

## 4. HOW TO OPERATE

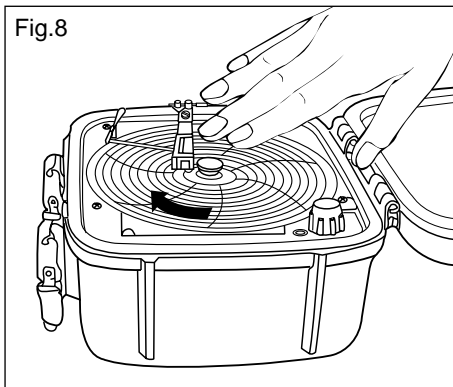


7. Fit up the Chart Paper Holder on the Axis.

Confirm if the Holder is holding the Chart Paper Disk firmly.

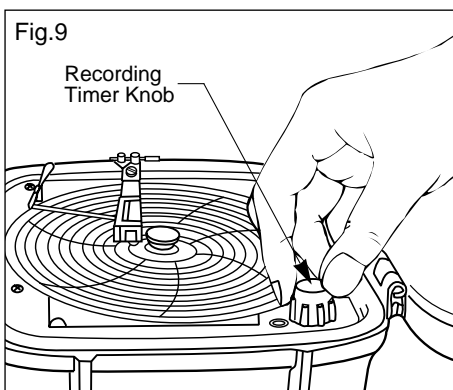
**CAUTION :**

If the Chart Paper Disc is not holded firmly, the Axis will run idle and the correc data are not recorded on the Chart Paper Disc.



8. Rotate the Chart Paper Disc so that the Pen Point will come to the starting point.

When the recording work is finished, the Pen Point will come to the starting point.



9. Adjust the recording time with the Timer Knob.

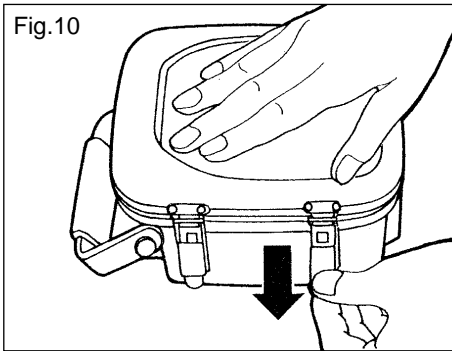
**CAUTION :**

The recording time of the Chart Paper Disc and the recording time of the Timer Knob are required to be coincided.

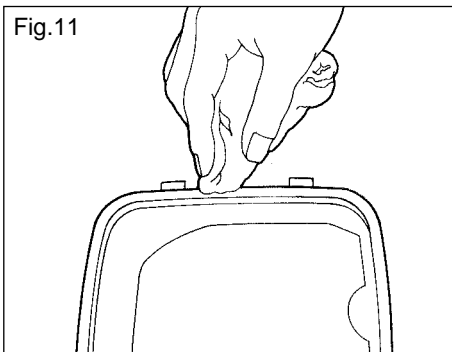
**CAUTION :**

When changing the Chart Paper Disc, turn the Timer Knob to OFF position without fail.

## 4. HOW TO OPERATE

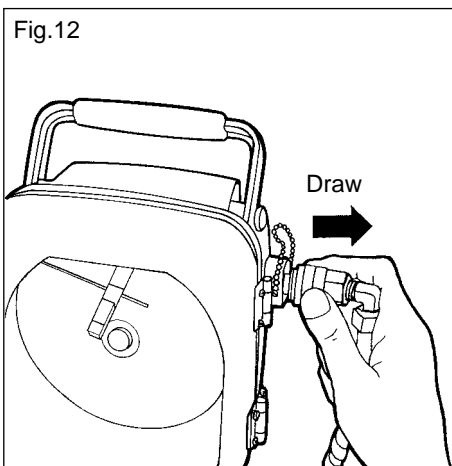


10. Close the Front Cover as shown by the Fig.10 and lock it with the Catch Clip by pushing it down.



### CAUTION :

Close the Front Cover after cleaning the Waterproof Packing. Soil or Small Pebble will cause a trouble by water leaking in.



11. Draw the Connector of Hose toward the arrow direction as shown by the Fig.12.
12. Remove the Chart Paper Disc after the operation on site.
13. Switch off after the operation on site.
14. As regards the storage of FJN-501, refer to HOW TO STORAGE Page16.

## 4. HOW TO OPERATE

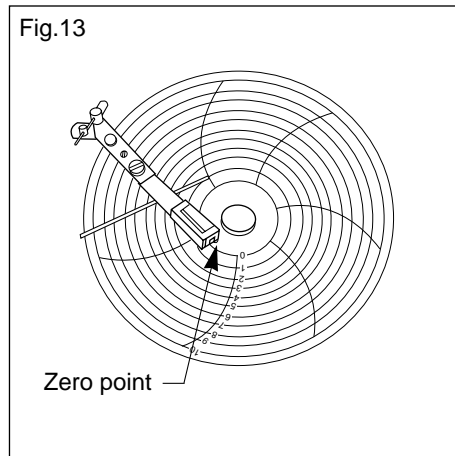
### 4 - 2 HOW TO MAKE THE ZERO POINT ADJUSTMENT

1. Detach the Conduit Tube from the Pressure Recorder so as to make the pressure Zero in the BOURDON TUBE.

Set down the Arm Lifter and make the Pen-point touch on the Chart Paper.

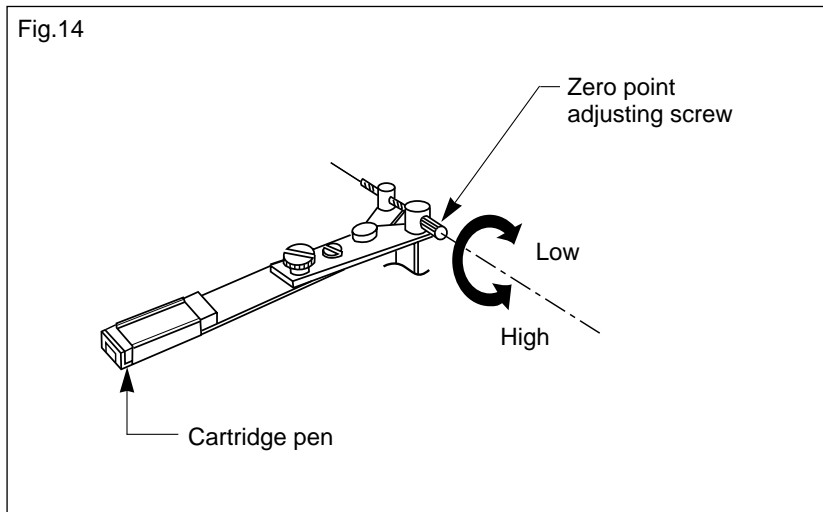
Confirm if the Pen-point locates right on the Zero Scale (0 Mpa).

Fig.13



2. When the Pen-point locates at the higher side than the scale of 0 Mpa, turn the Adjusting Screw counter-clockwise.

Fig.14



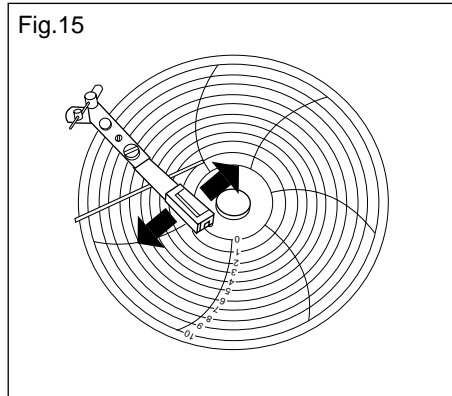
## 4. HOW TO OPERATE

### 4 - 3 HOW TO ADJUST THE PEN PRESSURE

1. Put down the Arm Lifter and confirm if the Pen-point touches well on the Chart Paper.

Move the Pen-point on right and left (within 10mm) with fingers and confirm if the Pen-point returns to the point where it was and writes the Red Line clearly.

Fig.15



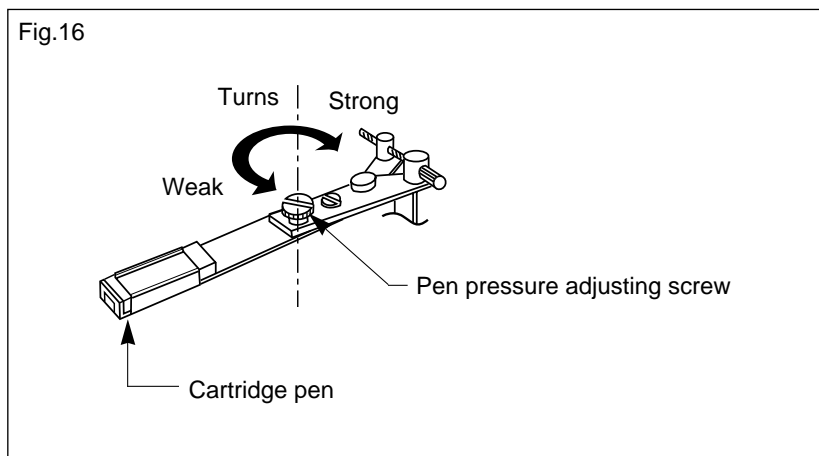
2. When the Pen-point does not return well, adjust the Pen Pressure by turning the Pressure Adjusting Screw.

#### **CAUTION :**

When the Cartridge Pen does not write the line clearly, confirm if the Cartridge contains the Ink enough or not. The dry Cartridge is required to be changed with the new one.

Otherwise, adjust the Pen Pressure by turning the Pressure Adjusting Screw.

Fig.16



## 4. HOW TO OPERATE

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### 4 - 4 HOW TO SET UP THE RECORDING TIME

Turn the Recording Time Knob slowly so as to set up the Recording Time in need. Within five seconds after setting it up, the built-in Clock starts operation.

Upon starting operation, the LED indicates in which MEASURING TIME the FJN-501 is now operated.

The LED will light ON and OFF as follows.

#### (Type A)

- 4 hours ..... ON and OFF are repeated.
- 12 hours ..... ON ON and OFF are repeated.
- 24 hours ..... ON ON ON and OFF are repeated.
- 72 hours ..... ON ON ON ON and OFF are repeated.
- 168 hours ..... ON ON ON ON ON and OFF are repeated.

#### (Type C)

- 15 minutes ..... ON and OFF are repeated.
- 30 minutes ..... ON ON and OFF are repeated.
- 60 minutes ..... ON ON ON and OFF are repeated.

The above indication of each type is repeated within one minute so as to save the battery power.

## 4. HOW TO OPERATE

### 4 - 5 AFTER THE OPERATION ON SITE

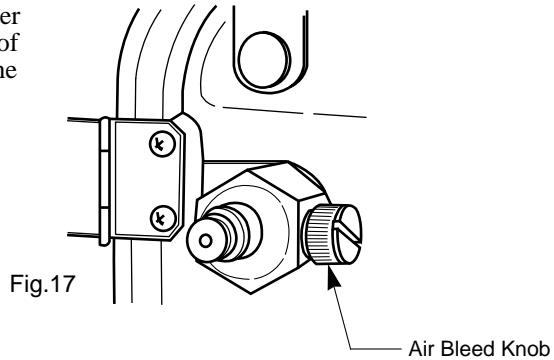
After having finished the recording work on site, open the Front Cover and turn the Recording Time Knob to OFF position.

**NOTE :**

FJN-501 has been designed not to work again in case that the Recording Time Knob was not turned off after having finished the recording work.

**CAUTION :**

Remove the Connecting Hose after releasing air completely by use of the Air Bleed Knob shown by the Fig.17.

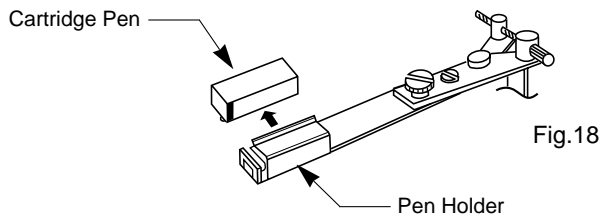


### 4 - 6 HOW TO REMOVE THE CARTRIDGE PEN

By use of the Pen Lifter, lift up the Pen Arm and pull out the Cartridge Pen toward the direction of the Arrow Mark as shown by the Fig.18.

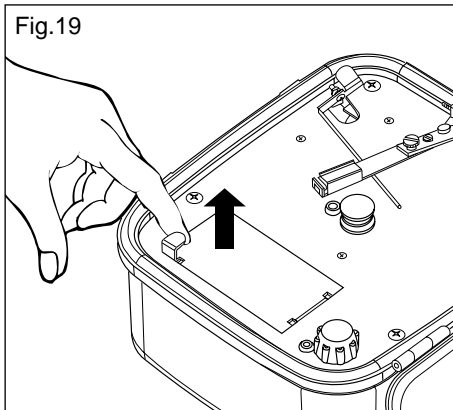
**CAUTION :**

Do not remove the Cartridge Pen unnaturally from the Pen Holder. The Cartridge Pen Arm is required to avoid its deformation.



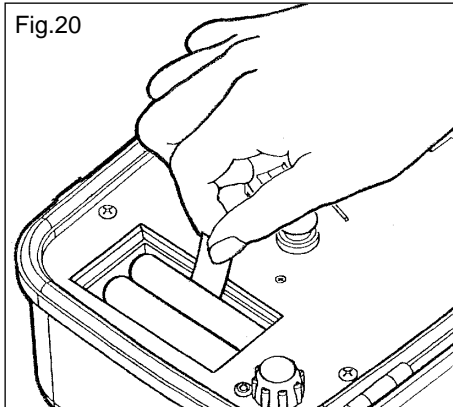
## 4. HOW TO OPERATE

### 4 - 7 HOW TO CHANGE THE BATTERY



The Battery Case Cover is located under the Chart Paper Disc. When removing the Battery Case Cover, remove the Chart Paper Disc.

The Battery Case Cover is attached by the Magnetic Power. Pull it up with finger as shown by the Fig.19.



Pull up the Ribbon as shown by the Fig.20 to remove the Battery.

**CAUTION :**

Pay attention to the polarity of Battery as shown by the Fig.21.

**CAUTION :**

When changing the Battery with new one, place the Battery Ribbon under the Batteries as shown by the Fig.20.

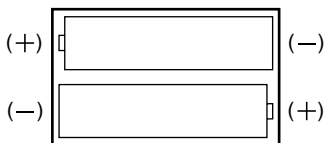


Fig.21

After having confirmed the Polarities of Batteries as shown by the Fig.21, close the Battery Case Cover.

## **5. HOW TO OPERATE WITH THE FIRE HYDRANT**

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### **5 - 1 PREPARATION FOR FJN-501 MAIN UNIT**

- A) Check the residual battery power by turning the Recording Timer Knob to one of the Recording Hours such as 4, 12, 24, 72 and 168 hours.
- B) Fit up the Chart Paper Disc centered with the Axis after removing the Chart Paper Holder.
- C) Adjust the position of Pen Point to the line of Zero Degree.
- D) Turn the Timer Knob to the point of Recording Time required for the operation.
- E) Close the Front Cover and Lock it with the Catch Clip.

### **5 - 2 TO ATTACH THE FUJI COUPLING TO THE OUTLET OF FIRE HYDRANT**

- A) Open the Fire-hydrant slowly and drain water to eliminate air remained in the pipe.
- B) Close the Fire-hydrant and clean the Outlet of it to mount the Fuji coupling.
- C) Attach the Fuji Coupling to the Outlet of Fire-hydrant. In this case, the Ball Valve of connecting hose is required to have been closed.
- D) Confirm if the Fuji Coupling has been attached firmly to the Outlet of Fire-hydrant.

### **5 - 3 HOW TO OPEN THE FIRE HYDRANT**

- A) Open the Fire-hydrant slowly so as to avoid malfunctions caused by the water pressure given suddenly.

## 6. HOW TO STORE THE FJN-501

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- 1) When storing the FJN-501 Main Unit, the Cartridge Pen is not required to be removed. Its Pen Point is required to be inserted into the Cartridge Pen Cap as shown by the following Fig.22.
- 2) Return the Recording Timer Knob to the position of OFF.
- 3) Store the FJN-501 Main Unit after removing the Batteries when it is not operated for a long time.
- 4) When the inside of the Storage Case is wetted, dry up the inside before storing the FJN-501.

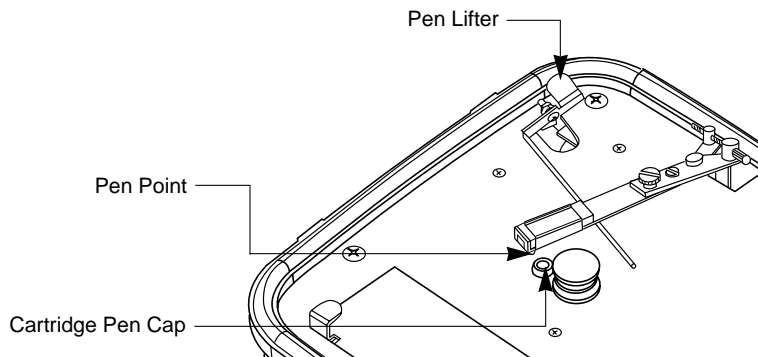


Fig.22

- 5) Store the FJN-501 after cleaning in the Storage Case.

## 7. SPECIFICATIONS

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Model and Type	FJN-501(A Type)	FJN-501(C Type)
Pressure Range	0.5, 1.0, 1.4, 2.0 Mpa	
Recording Time	4, 12, 24, 72, 168 Hours	15, 30, 60 Minutes
Power Check	CPU does not work at the voltage less than 2.2V	
Mode Check	LED indicates by blinking	
Operation Power	3.0 Volts (Minimum 2.2V)	
Battery Life	By Alkaline Dry Battery	
	4 h ..... 80 days 12h ..... 220 days 24h ..... 380 days 72h ..... 720 days 168h ..... 970 days	15 min. .... 150 days 30 min. .... 250 days 60 min. .... 400 days
Weight & Size	1.35kg (Main Unit) /180mm×162mm×96mm	
Gross Weight	3.7kg with the Carrying Case	

## INSPECTION CERTIFICATE

MODEL: **FJN-501**      DATE: \_\_\_\_\_

SERIAL No: \_\_\_\_\_

We hereby certify that the undersigner checked the above instrument with careful attention under the Fuji interoffice inspection standard consisting of four main items as follows:-

(1) EXTERNAL APPEARANCE .....

(2) MECHANICAL WORK .....

\* Knob, lever & key   \* Connector   \* Joint

(3) ELECTRIC FUNCTION .....

\* Indicator & Display   \* Output   \* Sensitivity

\* Frequency                \* Input   \* Power

(4) OPERATION ON TEST SITE .....

\* Distance                \* Location                \* Level

\* Depth                    \* Flow

\* Direction                \* Pressure

Inspected by: \_\_\_\_\_



Instruments for the location of underground utilities and water leaks.

### **FUJI TECOM INC.**

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