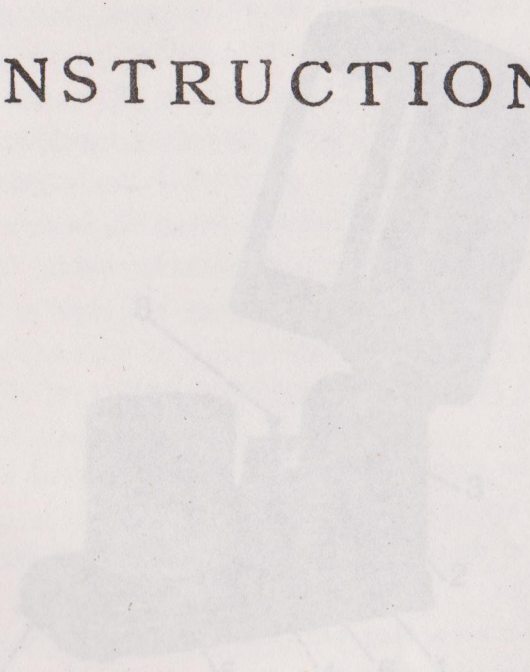
SELF—RECORDING BAROMETER
TYPE DYJI (DYJ1—1)

# INSTRUCTIONS

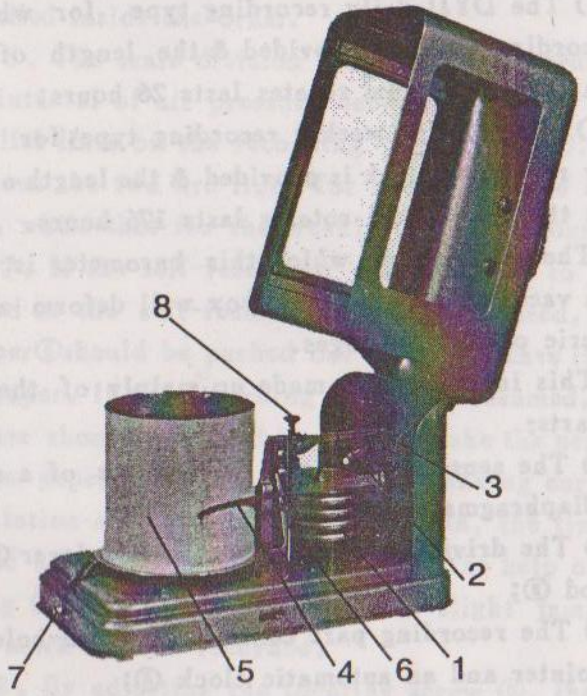


THE PEOPLE'S REPUBLIC OF CHINA

CHANGCHUN METEOROLOGICAL
INSTRUMENT FACTORY

# INSTRUCTIONS

## SELF-RECORDING BAROMETER
## TYPE DYJI (DYJI-1)




## APPLICATONS

1. The DYJI (DYJI-1) daily(weekly) self-recording aneroid barometer is an instrument designed for meteriological observatories, stations and other corresponding organizations for recording continously the variation of

atmospheric pressure in the lower atmosphere in a given period of time.

## GENERAL DESCRIPTION

1. There are two types of this kind of barometer:

(1) The DYJI daily recording type, for which a daily recording clock is provided & the length of time in which the clock drum rotates lasts 26 hours;

(2) The DYJI-1 weekly recording type, for which a weekly recording clock is provided & the length of time in which the clock drum rotates lasts 176 hours.

2. The principle on which this barometer is based is that a vacuum diaphragmatic box will deform as the atmospheric pressure changes.

3. This instrument is made up mainly of the following parts:

(1) The sensitive element ① consists of a set of vacuum diaphragmatic boxes;

(2) The driving mechanism contains a lever ② and a drag-rod ③;

(3) The recording part consists of a pen-holder ④ with a pointer and an automatic clock ⑤;

(4) The case is composed of a base and a cover and

(5) The arrangement for temperature compensation in the instrument is made by the use of a first-class double metal plate.

4. When the pressure in the atmosphere changes, the set of the vacuum diaphragmatic boxes deform with it and, through the leverage of the lever, the pointer



on the penholder is made moving up and down along an arc-line on the recording paper (when the air pressure decreases, the pointer will move downwards, and when the air pressure increases, the pointer will move upwards.).

5. The drum of the recording clock revolves around the central axle fixed on the base by a clock machanism installed inside the drum.

6. The scale division lines on the recording paper: the interval of air pressure between the two horizontal parallel lines on the recording paper is 1 mB. The time between the two arc-lines for the daily type is 15 minutes, while that for the weekly type is 2 hours.

7. If the self-recording operation is to be interrupted or the self-recording paper replaced, the pen-stopper ⑥ should be pushed out so as to leave the pen off the paper. If the recording is to be resumed, the pen-stopper should be pulled in so as to make the pen attached to the paper. For the purpose of making correction in calculation at the time of observation, the time button should be lightly pressed, thus with the help of the time spring ⑨, the pointer will make a slight jump, and a time-mark will be recorded.

8. By adjusting the locating screw ⑧, the pen can be shifted to any desired scale division line on the recording paper.

9. When the cover is to be opened, the spring button ⑦ of the spring lock should be pressed, when it is to be closed, the cover should be put down and gently pressed.

# SPECIFICATIONS

1. The measuring range of the instrumet: the atmospheric pressure between 960~1050 $hp_a$ may be measured when the surrounding temperature of the air is −10°C —+40°C (Note: The variation of the atmospheric pressure in any 90 $hp_a$ interval within 870~1050 $hp_a$ range may be recorded by means of adjusting the regulator of the barometer).

2. The temperature coefficient of the barometer is not greater than ± 0.13 $hp_a$/1°C.

3. When the correction at 1010 $hp_a$ point is 0.0, the corrections at both-end-points (i. e. at 960 $hp_a$ and 1050 $hp_a$ of the barometer should not be greater than ±0.7 $hp_a$

4. The ladder-like record caused by friction resulting from tapping on the instrument should not be greater than 0.4 $hp_a$ in the daily type and 0.7 $hp_a$ in the weekly type.

5. The continuously revolving period for each rotation in the self-recording clock of the daily type is 26 hours, and the error it may make within 24 honrs is not more than ±5 minutes. After being fully wound up, the clock can revolve continuously for no less than 36 hours.

6. The weekly self-recording clock may revolve for each rotation 176 hours, and the error it may make within 168 hours is not to be more than ± 30 minutes. After being fully wound up, the clock can revolve continuously for 180 hours.



7. The variations in the atmospheric pressure are to be recorded only on the specially prepared self-recording paper

8. The weight of the barometer is less than 3 kg; the outside dimensions are: length × width × height =245 ×130×195 mm

# THE COMPLETE SET

A set of the barometer contains:

1 barometer (Type DYJI or DYJI-1),
2 spare recording pens,
1 bottle of recording ink,
400 sheets of recording paper for the daily recording type of barometer,
100 sheets of paper for the weekly recording type of barometer,
1 certificate of quality,
1 copy of instructions and
1 copy of instructions in the use of the automatic clock.

# DIRECTIONS FOR USE

1 Upon receipt of the instrument, an examination with respect to its completeness, outside appearance, including damages through shipment should be made. Only when absence of deffects is made certain should the instrument be commissioned to use.

2. Before installation, see to it that:

a. the instrument has been carefully cleaned;

b. the recording paper has been tightly clipped with a paper clip on the clock drum;

c. the pen-holder has been unfastened from the pen-stopper;

d. the main spring of the clock has been wound up;

e. the well-installed self-recording clock has been placed on the central axle;

f. the pen has been filled up with ink;

g. the pen-stopper has to be adjusted so as to make the pen getting in touch with the paper; and lastly,

h. the quality of the recording line written by the pen on the recording paper has to be carefully checked, the width of which should not exceed 0.3 mm.

3. When the instrument is in use, the following steps are to be taken while replacing the recording paper or refilling the pen:

a. Press the button of the spring lock and open the cover, then push away the pen-stopper so as to leave the pen off the recording paper and take off the self-recording clock from the central axle.

b. Take down both the clip and the recording paper, then fill in the date and the time of interruption (to be accurate up to one minute) on the recording paper.

c. Wind up the main spring in anticlockwise sense.

d. Replace a new sheet of recording paper and it has to be tigntened up to the surface of the drum, the lower edge of the paper should go right close to the convex rim at the bottom of the drum, and the junction of both ends of the paper should be so arranged as to



make the horizontal lines coincide, being clipped tightly with a paper clip.

e. Then put the self-recording clock carefully back on the central axle, and mark down the starting time on the recording paper.

f. Examine the recording quality of the pen and fill it with recording ink. Care must be taken to avoid over-flowing. In case any surplus ink is found on the surface of the pen, it should be craped off with a piece of hard smooth paper. If the pen gets stuck, it should be cleaned with a piece of smooth paper.

g. Turn the drum round and make the time position indicated by the pen agree with the actual time. In order to avoid gearing backlash, while in setting the time position, the self-recording clock is to be turned only in the anticlockwise sense.

4. In using the barometer, nothing should be allowed to touch the sensitive element—the diaphragmatic boxes. The pen-holder or any other part of the driving system should not be heavily pressed.

5. In the process of using the instrument, the following defects may be found and the following corresponding preventive measures may be taken:

a. If the error of the self-recording clock exceeds the regulated amount, the dust-proof gadget on the drum can be shifted and the speed regulator adjusted to the suitable position; then the gadget is to be shifted back to its original position.

b. When the quality of the recording line drawn is not up to the standard, the pen should be taken off and

washed by alcohol or put in clean water for a few hours. When this is done, clean it by a piece of thin linen cloth or thick paper and refix it. To ensure whether the pen is well installed, the locating screw may be turned until the pen is free to move up and down along the arc-line on the recording paper. The curve drawn by the pen should at this time coincide with or in parallel to the arc-lines on the paper. Otherwise, the installation length of the pen on the pen-holder should either be shortened or lengthened. If strong friction is observed, the instrument should undergo an immediate repair.

## MAINTENANCE, PACKING AND SHIPMENT

1. The barometer is to be kept in a well-ventilated room where the air is dry. No acidic or volatile substances which may cause the metal parts of the instrument to become rusty should placed in the same room.

2. Prior to packing, the pen-holder should be bound to the pen-stopper, allowing 2~3 mm of space for free movement. The hollow space between the top of the clock and the inner part of the case should be filled up with pads made of dry strips of papet wrapped in clean and thin paper. Each barometer is to be put separately in a carton which is, in turn, to be wrapped in paper and put in a packing-box. Space should be allowed between the carton and the packing-box which should be inserted with suitable shock-proof and moisture proof materials. The instrument may be delivered by any means of transportation except aeroplane.



## DURATION FOR FREE REPLACEMENT AND REPAIR

Under the condition that all the rules with respect to maintenance, shipment and application are observeds from the date of delivery within 12 months, if the product is found to be defective in quality or unable to perform normal functions, the manufacturer will undertake the responsibility to make replacement or free repair.