SJR-9900A Auto Refractometer Instructions

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Using the auto refractometer with a patient:

1. Initial Setup:
    - Ensure clamping bolt is loose to allow movement
    - Check settings are appropriate:
        - VD (vertex distance): 12 or 13.5mm based on patient
        - CYL (cylinder): minus or plus notation as preferred
        - LIGHT: normally start with normal setting
        - STEP: typically 0.25D unless finer measurements needed
2. Patient Positioning:
    - Seat patient comfortably
    - Adjust chair/table height
    - Ask patient to place chin on chin rest and forehead against the forehead rest
3. Measurement Process:
    - Start with right eye
    - Use the knob to center the device over the pupil
    - Make fine adjustments forward/back for focus
    - Take measurement
    - Move knob to shift to other eye
    - Center and focus again
    - Take measurement
    - Repeat if necessary (if inconsistent results)

Clamping bolt: For transport only. Leave loose so top can move completely.

VD: "Vertex Distance", distance between the front surface of eye and back surface of eyeglass lens (eye-to-lens spacing). Can be set to 12 or 13.5 mm. 12 is typical for Asian faces, 13.5 typical for Western faces. Affects diopter calculations.

The simple ethnic-based 12mm/13.5mm settings are more of a general guideline or default when precise measurement isn't available. For accurate prescriptions, especially with higher powers (typically +/-4.00D or stronger), taking an actual measurement is more appropriate since vertex distance can significantly affect the effective power of the lenses.

CYL: Indicating cylinder type

Astigmatism correction. The "cylinder type" is a notation convention; “-“ is normally used in the US.

For example, the same prescription could be written as:

- Minus cylinder: -2.00 -1.00 x 180
- Plus cylinder: -3.00 +1.00 x 90

LIGHT: Indicating lightness of entering pupil

Illumination level when measuring the patient's eye. The amount of light affects pupil size, which can impact the measurement accuracy.

It can be set to "high" or normal. Use “high” for:

- Patients with very large pupils
- Darker colored irises where more light may be needed for accurate readings
- Low contrast retinal reflections
- Situations where clearer measurements are needed

S C A refers to the measurements being taken:

- S = Sphere (overall lens power)
- C = Cylinder (astigmatism power)
- A = Axis (orientation of astigmatism)

The blank spaces that show R and L indicate which eye is being measured:

- R = Right eye
- L = Left eye

The knob allows you to switch between viewing/controlling measurements for:

- Move left to see Right eye measurements
- Move right to see Left eye measurements

Step which can be set to 0.25 or 0.12(5) (diopters)

Step size or increment of measurement for the sphere and cylinder powers. Diopters.

0.25 D (diopters) is standard. Eyeglasses made in 0.25 D steps.

PD (pupil distance). Measured by the auto refractometer. Distance between the centers of the pupils of both eyes. Measured by movement of instrument head. Millimeters.

A typical adult PD usually falls between 58-68 mm for women, 60-70 mm for men

"Adjust" is a calibration or offset adjustment. Leave alone unless systematic measurement errors.

BASE button. Initialization/calibration process:

1. After long distance transportation
2. When the machine shows "NOK"

The process seems to be a basic self-calibration/initialization where the machine:

1. Needs its lens cover on
2. Goes through some menu screens
3. Does something when BASE is pressed (probably resetting to base settings)
4. Shows "WAIT" while processing
5. Saves the initialization

Don't run the initialization unless you start having problems.

1. Basic Settings:
    - STEP: Currently at 12 (0.125D)
    - CYL: Set to minus (-)
    - LIGHT: Normal
    - VD: 12 (or 13.5 depending on your typical patients)
    - Adjustment (ADJ): At zero
2. Movement Check:
    - Top mechanism moves smoothly left/right and forward/back
    - Clamping bolt is loose during operation
    - Operation stick (knob) moves freely
3. Display:
    - Screen is clear
    - No error messages
    - S C A values display properly for both eyes
    - R and L indicators work when moving between eyes
    - PD measurements display correctly
4. Take some test measurements:
    - Record readings from a test subject
    - Note if measurements are consistent when repeated
    - Check if PD measurements seem reasonable
    - Verify both measurement methods (PD button vs stick button) work