

**REFERENCE
and
INSTRUCTION
MANUAL**

**OPTEC[®]
VISION TESTER**



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INTRODUCTION

Good vision is a precious gift, which should be guarded, cherished, and nurtured throughout life. To maintain good vision, frequent vision screenings and periodic visual exams are necessary. In this way, an awareness of inadequate vision or changes in vision can be noted. The eye-care professional can then correct most visual problems. Without these screenings, many children and adults would have undetected visual difficulties, having a direct effect on their quality of life.

Eye-care professionals feel that the earlier vision screening can begin, the more rewarding the results can be. This attention should be continued throughout adult life, with specific attention to the working years.

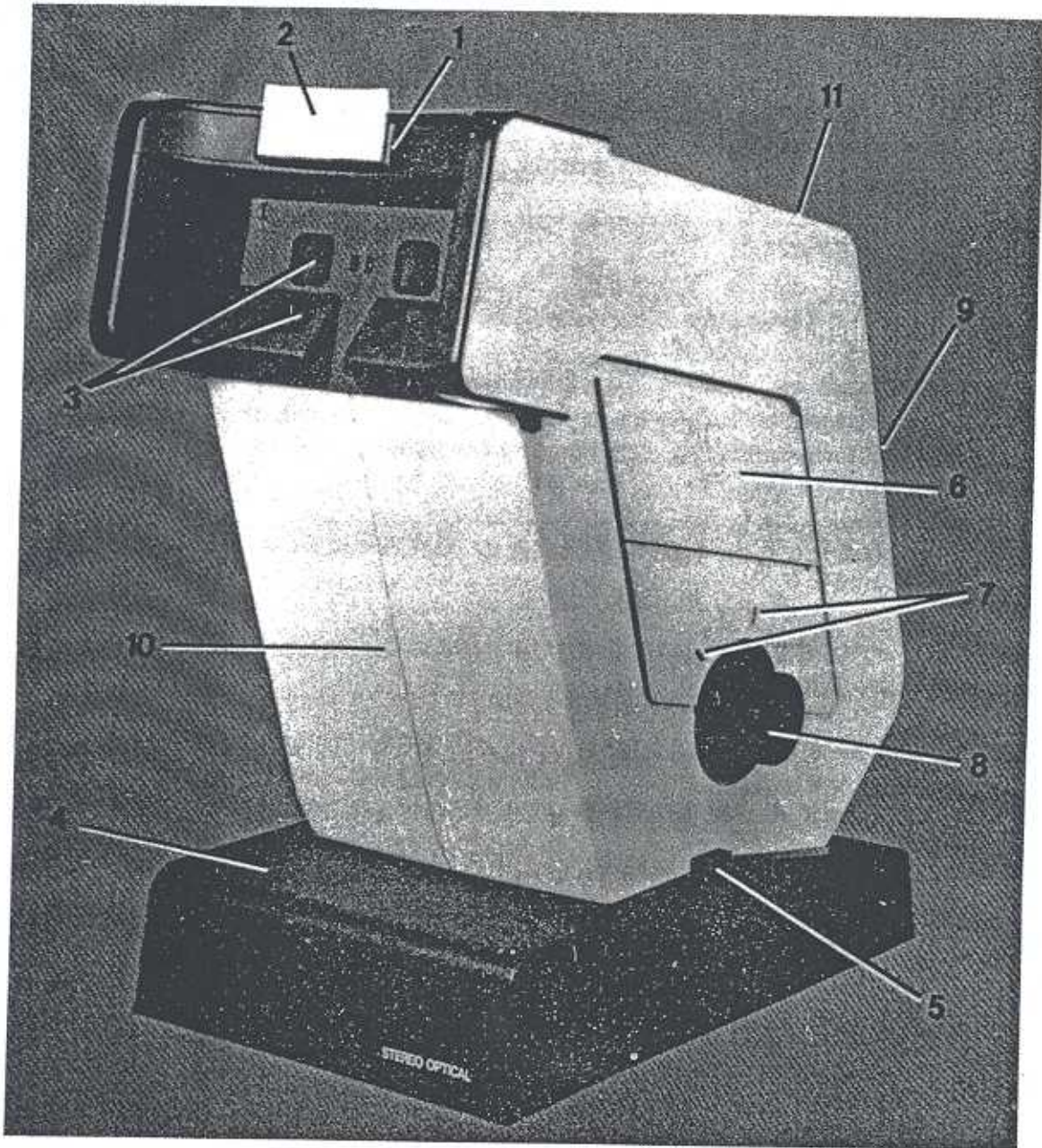
Stereo Optical's Model 2000 Vision Tester does this screening very efficiently. It is a precision instrument designed to do quick, accurate, reliable, and confidential screening. It will identify those who have a problem and need professional assistance.

EXTERNAL FEATURES

1. Forehead Trigger: Controls illumination inside the Vision Tester. It will only activate the lights when the subject maintains pressure against the trigger, insuring the subject to be at a proper distance for testing. When forehead pressure is applied to the bar, the green "Ready" indicator will be illuminated on the control panel and the subject is ready to be tested.
2. Headrest Tissue: The tissue cushions the subject's forehead while allowing maximum hygienic conditions.
3. Lens System: The upper lenses are for FAR Point testing (simulated distance of 20 ft.). The subject looks straight ahead. The lower lenses are for NEAR Point testing (simulated distance of 14 in.) with the subject looking down while holding his/her head straight. The lenses are easily accessible for cleaning and the face plate is wide enough to accommodate wide contemporary eyeglass frames.
4. Instrument Base: The base is textured black ABS plastic, and does not show dirt. It gives a stable foundation for the vision tester in all positions.
5. Elevation Adjustment: Simply depress the button in the base and adjust the instrument to the desired height for each subject. Release button and the instrument is locked in place.
6. Observation Doors: The observation doors, located on both sides of the unit, allow the tester easy access to both FAR and NEAR test slides. A pointer can be used by the tester to assist the subject in identifying the test targets. The pointer is held in place by clips inside the door. The doors are held closed with magnets. (See figure #6B, page 6)
7. FAR and NEAR Indicators: These lights indicate how the instrument is set to test, YELLOW for FAR, BLUE for NEAR.
8. Test Dial: Used to change slides in the viewing area. The ribbed dial turns easily and can go forward or reverse. The numbers on the dial correspond to the numbers on the record form for identifying the slide test. The number under the lit indicator is the number of the test in the viewing area.

On the Model 2500 (motor-driven) Vision Tester, this dial should not be used. All slides are advanced from buttons on the remote control panel.
9. Electronic Control Panel: Controls the functions of the vision tester, power switch, right and left eye switches, Near and Far switches, and the optional peripheral test controls.
10. Instrument Body: Injection molded of a durable, lightweight and flame retardant ABS plastic.
11. Carrying Handle: Built-in for maximum convenience. The rigid handle and lightweight body aid in ease of portability.

Figure 1



- 1 Forehead Trigger
- 2 Headrest Tissue
- 3 Lens System
- 4 Instrument Base
- 5 Elevation Adjustment
- 6 Observation Doors

- 7 Far and Near Indicators
- 8 Test Dial
- 9 Electronic Control Panel
- 10 Instrument Body
- 11 Carrying Handle

MODEL 2000: PRECISE AND CONVENIENT

INTERNAL FEATURES

1. An advanced light system renders a white light, resulting in high contrast images and truer color reproduction.
2. Built-in baffle assembly isolates the left and right eye, thus eliminating unwanted reflective light. By eliminating crossover, true binocular and monocular tests are guaranteed.
3. Front surface mirror offers a ghost-free image for more accurate testing of distance vision.
4. Up to twelve test slides can be mounted on a rotatable drum. The slides can easily be removed or replaced in seconds.
5. Stereo Optical's slides are manufactured from a high resolution photographic negative mounted between two layers of glass. The high resolution (500 line pairs/mm) affords a much finer acuity level for more accurate testing.
6. Stereo Optical's slides are transilluminated to eliminate glare and reflection. The result is a more accurate image, therefore a more accurate test.

FIGURE 6A: MODEL 2000P CONTROL PANEL

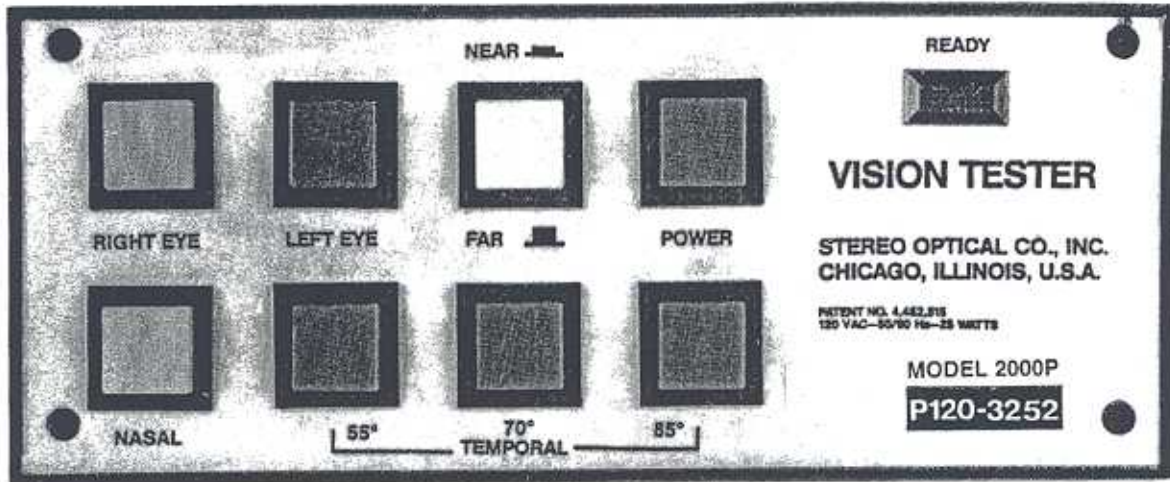
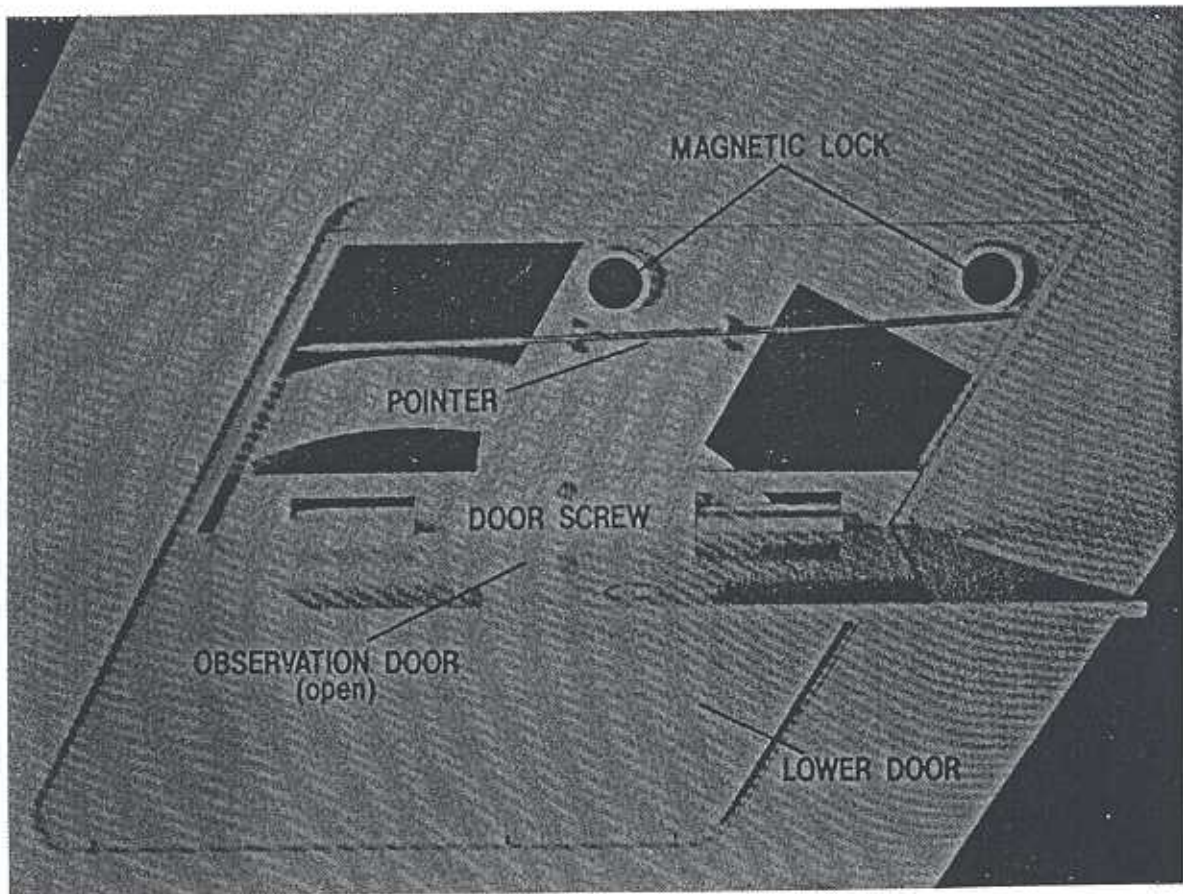


FIGURE 6B: ACCESS DOOR (HALF OPEN) FOR POINTING OR OBSERVATION.



ADVANCED DESIGN CONTROL PANEL

The control panel is designed for convenience in both operation and maintenance. Figure 6A shows the panel for the Model 2000P with perimeter (Non-motorized tester).

The switches from left to right in Figure 6A are:

RIGHT EYE : ORANGE SWITCH

When activated, the right eye will see the test target when the forehead trigger is activated. When the switch is turned OFF, the right eye will see nothing. To turn switch ON, depress; to turn switch OFF, press again.

LEFT EYE : GREEN SWITCH

When activated, the left eye will see the test target when forehead trigger is activated. When the switch is turned OFF, the left eye will see nothing. To turn switch ON, depress; to turn switch OFF, press again.

FAR/NEAR SWITCH: WHITE SWITCH

When the switch is raised, the unit is set for FAR point testing. The testing distance simulated in the instrument is twenty feet. Simultaneously, the YELLOW indicator light on the side panel will show the number of the FAR test in view.

With the switch depressed, the unit is set for NEAR point testing. The distance simulated in the instrument is fourteen inches. The BLUE indicator light on the side panel will show the number of the NEAR test in view.

POWER SWITCH: RED

Master ON/OFF power, depress for ON, press again for OFF.

READY LIGHT: GREEN

Indicates when subject is pressing against headrest trigger and is at proper testing distance.

The serial number and model number are located on the lower right side of the control panel.

PERIMETER SWITCHES:

Model 2000P (Figure 6A) Vision Tester with perimeter only.

The perimeter function is to test the lateral (horizontal) visual field.

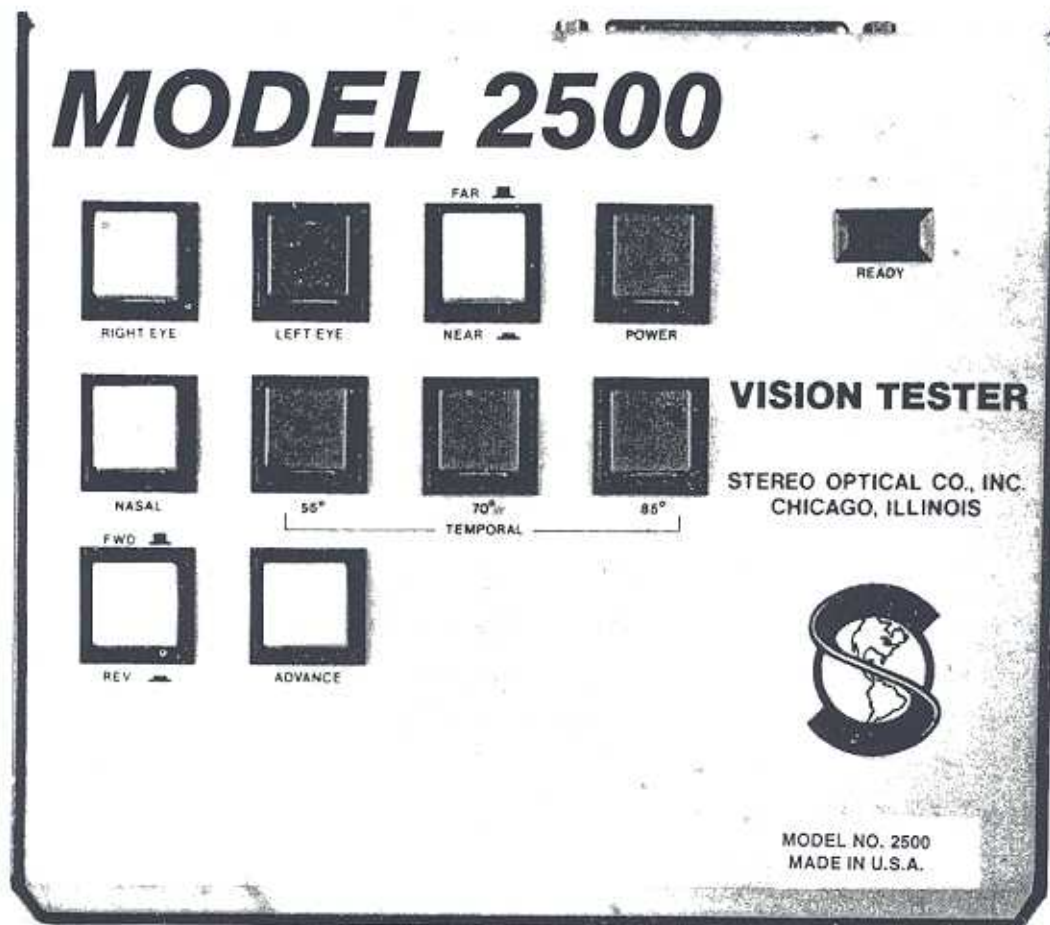
Four switches in the second row (one YELLOW, three BLUE) pertain to peripheral vision testing. All are momentary switches, staying on only if pressure is applied.

From left to right:

YELLOW Switch	35° nasal
first BLUE Switch	55° temporal
second BLUE Switch	70° temporal
third BLUE Switch	85° temporal

The same switches are used for testing both sides, right & left. Turn off the side not being tested by turning that eye switch off.

REMOTE CONTROL PANEL
(FOR MODEL 2500 MOTORIZED TESTER)



All testing functions are controlled by switches on a remote panel. These switches are described in detail below.

Right/Left Eye, Far/Near, Power & Perimeter switches all function as previously described.

ADVANCE SWITCH:

Pressing this switch once advances test slides one at a time. Holding this switch down allows for continual advancement of the test slides until the desired slide is in the correct position.

FORWARD/REVERSE SWITCH:

This switch determines direction of the slide advancement. When switch is raised, advancement is forward and when switch is depressed, slide carriage will move in reverse.

VISION TESTING—THE RIGHT WAY

Look into the instrument and note what happens when the eye switches are ON and OFF. Experiment viewing FAR points slides at NEAR point and vice versa by dialing through all twelve slides. First, view all slides in the FAR point mode, then repeat in the NEAR mode. Note that FAR test slides viewed at NEAR are upside-down, as are the NEAR test slides viewed at FAR. It is important to recognize whatever the subject may be describing and be able to answer any questions. Concentrate on acquiring a smooth delivery of instruction and description of the test target, as well as confidence in handling the instrument. The tester's administrative expertise can help relax the subject, get better cooperation, and a more accurate response.

When speaking to the subject, never act surprised or provoked by their responses or lack of response. Give the subject every opportunity to demonstrate his/her best vision.

If the subject is wearing glasses or contact lenses, he/she should wear them during the testing to determine whether or not his/her prescription is still adequate.

Select a table or counter of convenient height with sufficient surface space for the instrument and the recording of these results. Normal room lighting is acceptable, but care should be taken to avoid light shining on the lenses or on the subject's face.

IMPORTANT CHECKPOINTS:

- ✓ Be certain the instrument is plugged into a 110-120VAC outlet.
- ✓ Adjust instrument to proper height for subject's comfort by depressing button on base and moving the housing up or down.
- ✓ Push RED power switch on control panel to activate the instrument.
- ✓ Be certain that either the Right eye, Left eye, or both Right and Left eye buttons are depressed.
- ✓ Tear off headrest tissue, so a clean tissue is ready for the subject.
- ✓ Be certain the subject presses their forehead against the headrest trigger so the illumination in the unit is activated and the GREEN "READY" indicator on the control panel is lit.
- ✓ Be certain the subject is comfortable.
- ✓ Be certain to have a clean record form and a scoring marker convenient.

You are now ready to test.

"MODEL 2000P" PERIPHERAL TEST

This is a test of peripheral vision on the horizontal plane. The lights flash at 85, 70 and 55 degrees temporally and approximately 35 degrees nasally, so a possible total of 120 degrees arc for each eye can be attained. (Highest temporal reading plus nasal reading.)

Caution should be taken because the temples of eyeglass frames could interfere with this test. The test should be taken without eyeglasses on and again with the glasses on to determine if the frame does interfere with peripheral vision.

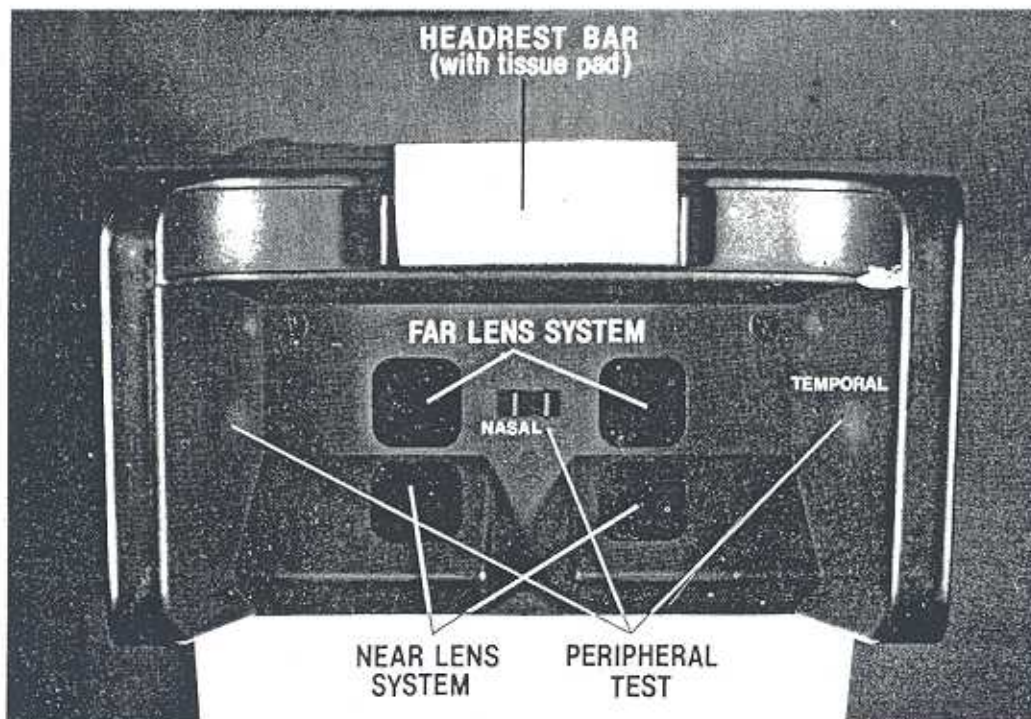
To administer the test:

1. Near/Far Switch in the Up position
2. RIGHT Eye Switch in the Down position
3. LEFT Eye Switch in the Up position
4. Dial #1 at YELLOW Indicator

Subject should look straight ahead, Through the FAR Lens system, with his forehead against the headrest trigger. Ask the subject to look at slide #1. Then ask the subject to point his finger in the direction he sees the light. The tester will then press one of the four switches, on the lower half of the control panel. The switches can be pressed in any order and should be held down for two or three seconds. Repeat the test with the left eye by turning the RIGHT Eye Switch OFF and the LEFT Eye Switch ON.

Note: This test can be administered to a one-eye person. In this case, the nasal test becomes very important because it will determine if there is peripheral vision on the blind side.

FIGURE 9A



REPLACEMENT OF BULBS: The instrument contains four 7 watt bulbs, two of which are located behind the lower doors on the right and left side of the instrument (lower half of observation doors). Be certain both the left and right eye switches on the rear control panel are ON when testing bulbs. **DISCONNECT POWER BEFORE REPLACEMENT OF BULBS.**

Upon opening the top side door, a screw can be seen in the center of the lip of the lower door. See figure #12A. Remove the door screw, drop the lower door down. See Figure #13A. Then remove single bulb access screw. This permits easy withdrawal of the double socket assembly so that new bulbs can be substituted. Replace both bulbs, right and left side, when one burns out. This insures uniform light intensity. Additional replacement bulbs can be purchased in lots of 6.

FIGURE 12A

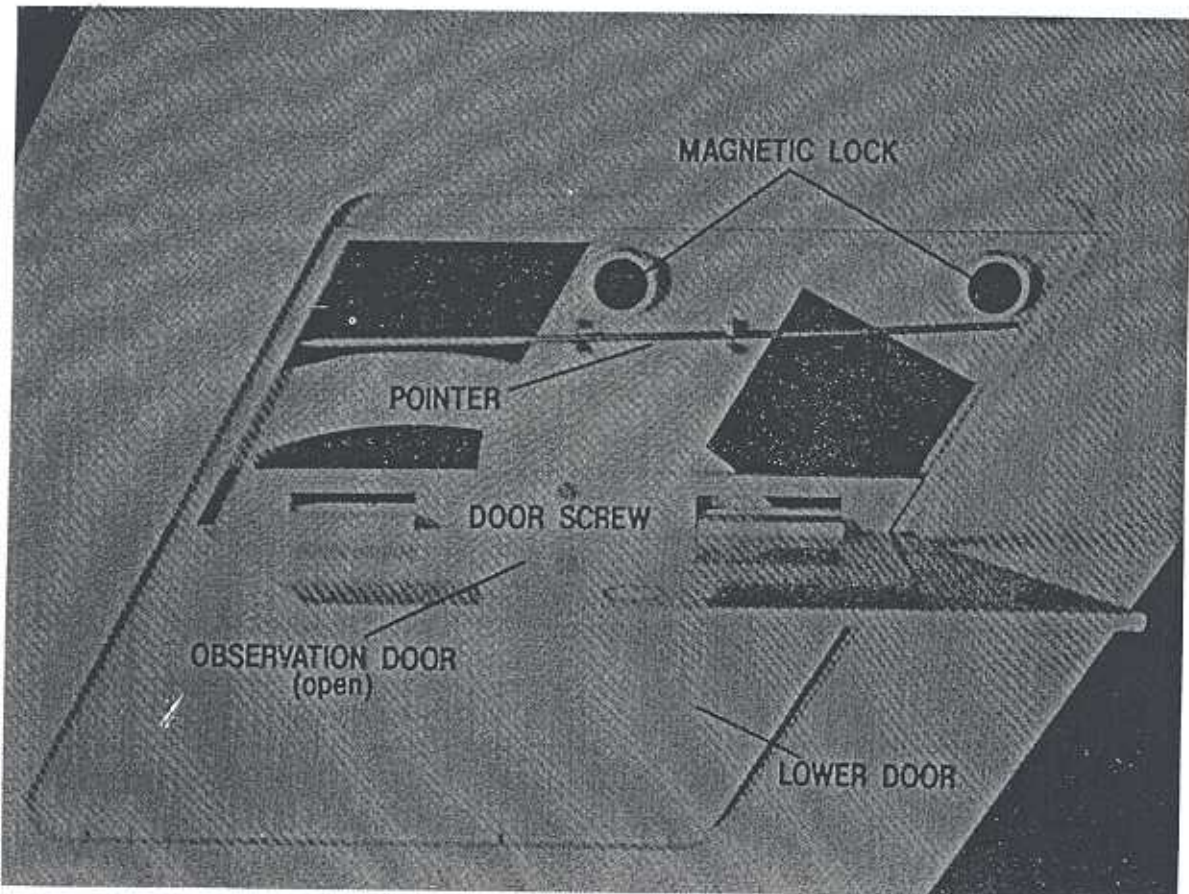
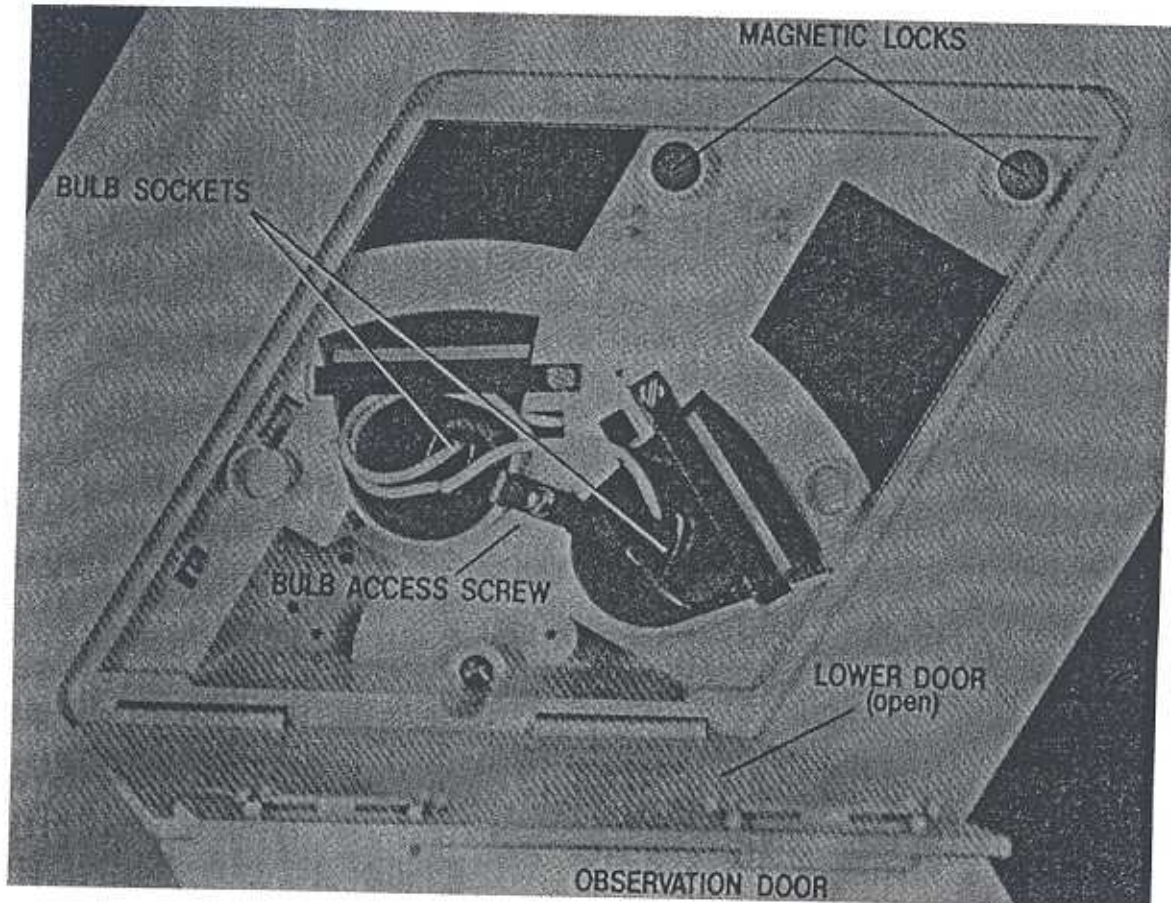


FIGURE 13A REPLACEMENT OF BULBS



MAINTENANCE OF YOUR MODEL 2000 VISION TESTER

Stereo Optical's Model 2000 Vision Tester was designed to minimize maintenance. All bearings and the internal mechanisms have been sealed at the factory. It has been engineered and built for a lifetime of use. The only annual maintenance required is simple and does not necessitate a service call.

The only components requiring occasional maintenance are:

EYEPiece LENSES: The external side of these lenses needs to be cleaned occasionally. Care should be taken not to use any abrasive material on these lenses. Use the cleaner supplied with the VISION TESTER, or plain soap and water can be substituted. It is important to dry the lenses with a soft cotton cloth or tissue. (See Figure #9A, page 9)

CLEANING OF SLIDES: Open the door above the control panel. Use a damp, soft cloth or tissue with lens cleaner and wipe the slide. Turn the dial and go on to the next slide repeating the same procedure. (Figure #11B)

REPLACEMENT OF THE SLIDES: The slide drum assembly holds up to twelve slides and can be easily reached through the door located above the control panel (see Figure #11B). To replace a slide, rotate the dial until the number of the slide to be removed is under the YELLOW indicator. Open rear door, remove slide on top of drum by rotating clips toward each other until they clear the slide. Remove unwanted slide. Insert new slide with label showing and arrow pointing away from you; return spring clips to their former positions to secure slide (see Figure #11B). Close the instrument door and you are again ready for operation.

CONTROL PANEL REMOVAL: The panel is designed with reliable solid state components. The modular design allows quick segmentation from the rest of the instrument.

EXTERIOR: The ABS plastic, of which the instrument body and base are made, is similar to your telephone and can be cleaned in the same manner. Use a damp, clean cloth and a mild detergent. A dust cover is provided for dust protection and to discourage tampering when instrument is not in use. An eight foot power cord can be disconnected to discourage tampering, also.

INSIDE MIRROR: Behind the rear door you will find a front surface mirror. Handle the mirror with care and avoid placing fingers on its surface. We recommend using the cleaner supplied with the instrument along with a moistened, clean soft cloth or tissue. **DO NOT TAMPER WITH THE THREE SCREWS SURROUNDING THE MIRROR.** The mirror has been carefully aligned to achieve precise light reflections and any tampering will require factory adjustment (Figure #11A)

NOTE: Always unplug the Tester before opening the back door and accessing the slides.

FIGURE 11A FRONT SURFACE MIRROR

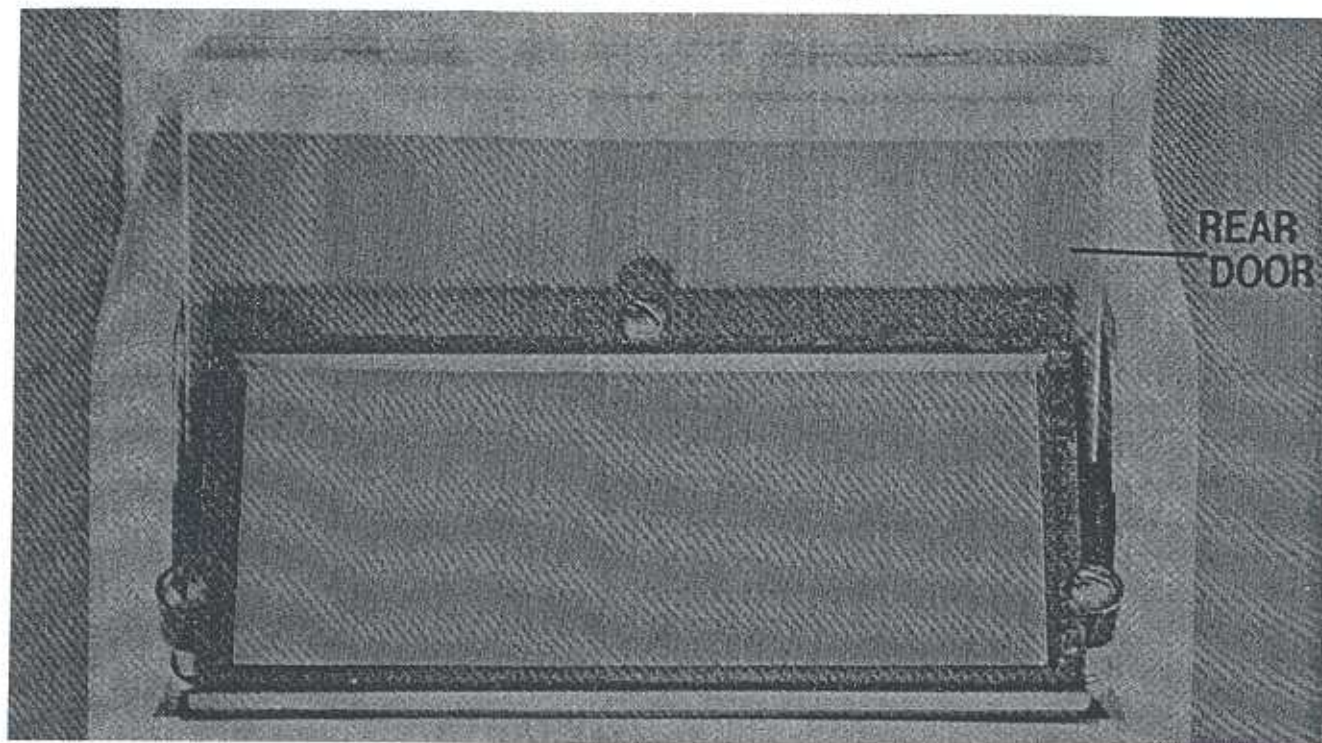
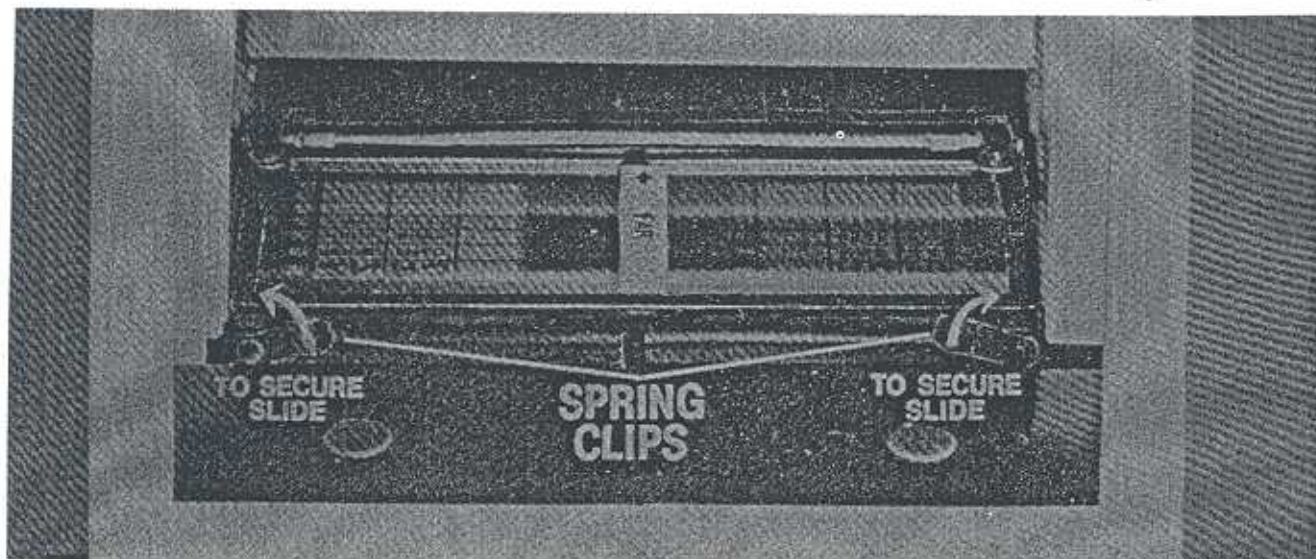


FIGURE 11B SLIDE CLEANING AND REMOVAL



ACCESSORIES

Slides: Black and White

Color

Special

Reference and Training Manual—Medical

Industrial

Record Forms —Medical	50 sheets per pad	10 pads per package
Industrial	50 sheets per pad	10 pads per package

Job Standards Book

Headrest Tissues 50 sheets per pad 50 pads per package

Dust Cover

Pointer 6 per package

Power Cord

Bulbs (7 watt) 6 per package

Lens Cleaner 2 oz. bottle

Plus Lenses: plus 1.75 D

plus 2.25 D

Intermediate Lenses: Set of five (5)

Lens #1	39.25 in.	100 centimeters
Lens #2	31.48 in.	80 centimeters
Lens #3	26.23 in.	66.7 centimeters
Lens #4	22.49 in.	57.1 centimeters
Lens #5	19.68 in.	50 centimeters

Durable Training Cards: 4 Cards per Envelope

Carrying Case - Optional

GLOSSARY:

Accommodation:

The ability of the eye to refocus from one distance to another

Acuity:

Clearness or sharpness of images

Amblyopia:

Also referred to as lazy eye, loss of sight in one eye

Astigmatism:

A mis-shaping of the eye that prevents light rays from coming to a single focus on the back of the eye

Binocular:

Ability to use two eyes simultaneously to focus on the same object and to fuse two images into a single image

Color Deficiency:

Diminished ability to perceive differences in certain colors

Convergence:

The process of directing two eyes from far to a near point

Depth Perception:

The ability to judge distance of objects from each other or from the observer

Diopter::

A measurement of optical power of lenses

Divergence:

The process of directing two eyes from a near point to a far point

Esophoria:

The tendency of the eyes to pull inward on the horizontal plane

Far Point::

Twenty feet to infinity

Focus:

The point at which light rays will come together after passing through a lens.

Fusion:

Power of coordination by which images received by two eyes become a single image

Hyperopia:

Farsightedness, the images focus behind the retina

Hyperphoria:

When either eye has a tendency to pull up on the vertical plane

Intermediate Vision:

Vision which focuses at some point beyond 14 inches (Near Point) and less than 20 feet (Far Point)

Malingerer:

A person who pretends to have a vision problem

Monocular:

Seeing with only one eye

Muscle Balance:

The coordination of muscles allowing two eyes to work together on the vertical and the lateral planes

Myopia:

Nearsightedness; has problems seeing at a distance; images focus in front of the retina

Near Point:

Fourteen to sixteen inches

Occlusion:

Obscuring the vision of an eye

Orthophoria:

Expected or normal teamwork of the eyes

Peripheral Vision:

Ability to perceive the presence, motion, or color of objects outside the direct line of vision

Phoria:

Root word denoting a latent deviation in which the eyes have a constant tendency to turn from the normal position for binocular vision

Stereopsis:

The ability to perceive depth

Suppression:

The nonuse of vision in one eye