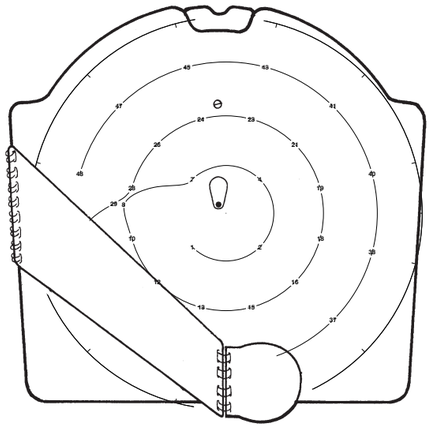
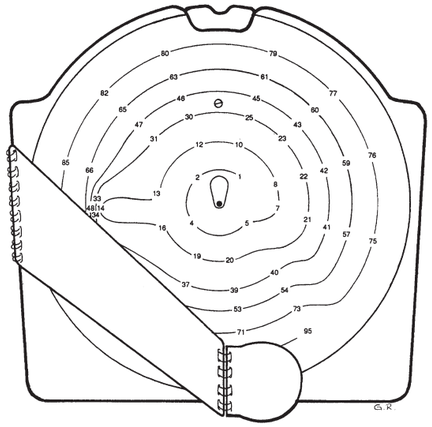
Also Available...



30 POINT CAMPIMETER

SKU: 2930

For rapid screening of the central 30° field.



60 POINT CAMPIMETER

SKU: 2960

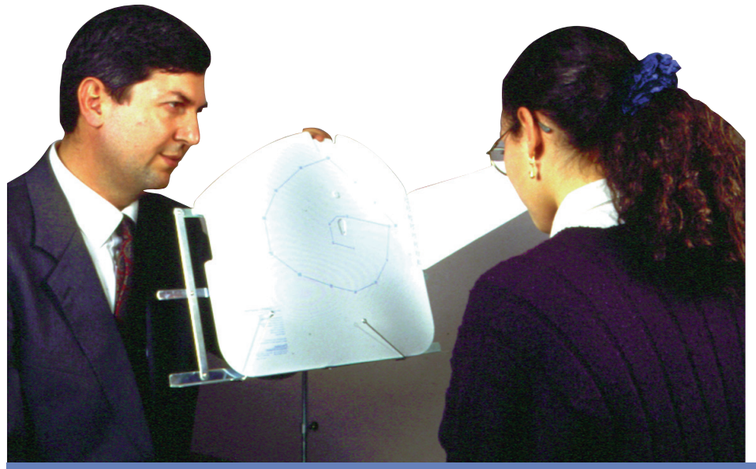
For more detailed examination of the central 30° field.

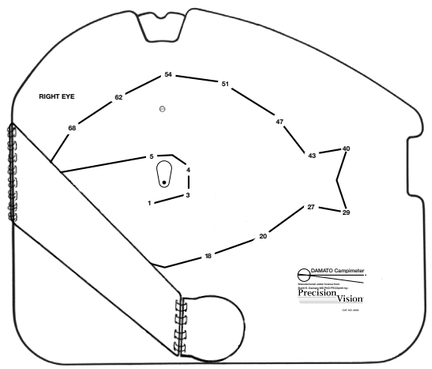
Each campimeter is supplied with black dial of varying size stimuli.

Also available is an additional dial with 3mm stimuli of varying contrast (i.e., 2.5%, 5%, 10%, 25% and 100%).

A pad of Recording Forms and Instruction Manual are included.

The DAMATO Dedicated Glaucoma Screener





User's Guide

DEVELOPED BY DR. BERTIL DAMATO

DAMATO Campimeter

20 POINT CAMPIMETER

SKU: 2920

TABLE OF CONTENTS

DAMATO Campimeter

Manufactured under license from
Bertil E. Damato MD PhD FRCOphth by:

Precision Vision®

1725 Kilkenny Court
Woodstock, IL 60098 • U.S.A.
Phone (815) 223-2022 FAX (815) 223-2224

(If local circumstances indicate that specialist examination would be performed regardless of the number of points missed...)

Examiner: We can stop the test at this stage. You need a full eye examination to discover the cause of this defect. You may just have an old scar at the back of the eye, which will never cause any problems, or you may have glaucoma or some other condition needing treatment.

(If it is necessary to obtain as much evidence as possible about the severity of the visual field defect, to improve the chances for specialist examination...)

Examiner: Let's see how large this defect is. Look at the next number, please

(If the result is normal in both eyes...)

Examiner: Well done. The result is normal so you do not seem to have any severe defects in your field of vision caused by glaucoma. However, this is only a superficial examination, because it would not be practical to perform a very detailed examination on everybody, and so it would be reasonable for you to have regular eye examinations in the future.

Examiner: Any questions?

Examiner: Thank you.

(Examiner inverts record sheet, writes comments about patient reliability, duration of test, and other relevant details.)

ACKNOWLEDGMENTS

I am fortunate to have such an international team of friends and colleagues assist in the development of the campimeter.

I am grateful for the invaluable support of the International Glaucoma Association, Merck, Prevent Blindness America, Ross Foundation for the Prevention of Blindness (Scotland), Royal National Institute of the Blind, and the University of Glasgow.

I am also grateful for the assistance of many colleagues, including Jaseem Ahmed, Emilio V. Alvarez, Cecilia H. Fenerty, Johanna Chyla, Jeffrey L. Jay, Elizabeth McClure, Fergus Neil, and Masato Wakakura. I am grateful to Gill Rycroft for the illustrations.

I recognize the contributions of scientific articles on my various multifixation campimeters published by researchers from around the world.

I value the professionalism and friendship of Ed Kopidlansky of Precision Vision in producing the campimeters to their high standards and patiently putting up with all my modifications.

I must also mention my family for their support.

Examiner: Well done. Now, we'll start the examination proper. Please keep looking at number one. Without looking away from that number, say "Now" when you see the spot out of the corner of your eye.

(Watching the patient's eye closely, the examiner slowly presents the 10% stimulus.)

Patient: Now.

Examiner: Now follow the line, read the next number aloud, and keep looking at the number.

Patient: Three...Now *(Examiner immediately removes the stimulus).*

Examiner: Next.

Patient: Four...Now.

Examiner: Good. Keep going.

Patient: Five...Now....Eight...Now *(Examiner presents the 10% stimulus without response).*

Examiner: Well done, you have found your normal blind-spot, which is present in every eye. Carry on, please.

Patient: Nine...Now....Ten....Now.

Patient: Seventy-six *(Examiner presents the stimulus without response).*

Examiner: You have found your normal blind-spot again. Well done. Now for the other eye.

Examiner: Please hold the flap against your right eye with your right hand and the corner of the chart with your left hand.

Examiner: If you look at the window can you see the spot clearly?

Patient: Yes.

Examiner: Thank you. Now please look at number one and read the number aloud when you are ready to start.

Patient: One... *(Examiner presents stimulus...)* Now....Three....Now...Four...Now... Five...Now.....Eight...

Examiner: Good. You have found your normal blind spot again, so you are doing fine. Now please carry on with the test as before.

Patient: Nine...Now...Ten...

(The patient misses the 10% stimulus and the examiner silently removes that stimulus, without jerking the disc, then immediately presents the 10% stimulus a second time. The patient again does not see the stimulus. The 25% stimulus is then presented, without response.)

Examiner: We seem to have discovered a defect in your visual field.

INTRODUCTION

The *DAMATO Dedicated Glaucoma Screener* is intended specifically for the detection of glaucomatous visual field loss when other methods are impractical. It is therefore designed to be as sensitive as reasonably possible without producing too many false positive results. It is not intended as a test for mild visual field loss, which is difficult to differentiate from normal variation, especially in older individuals.

As with any type of visual field examination, this test should if possible be administered along with measurement of the intraocular pressure, ophthalmoscopic assessment of the optic nerve head, and ideally a full eye examination. Like any type of test for glaucoma, a normal result does not guarantee that the eye is healthy and an abnormal result could be due to conditions other than glaucoma, not all of which are sight-threatening. Any abnormal or uncertain results should therefore be confirmed by other appropriate examination.

As with any procedure, results are likely to improve with experience, quality control studies, and feedback on patients referred for further care.

Package Components

In addition to this instruction leaflet, your package contains the test card and a pad of record sheets.

FEATURES

The multifixation campimeter uses numbered fixation targets to control the patient's gaze so as to place the test stimulus precisely at known points in the visual field.

The hand-held campimeter is a double-sided card, with a test grid for one eye on one side and another test grid for the fellow eye on the reverse side. The test grid has a series of fixation targets situated around a central window, in which selected stimuli are presented by the examiner dialing a disc inside the card. *(FIGURE 1)*.

An eye-cover is available for the fellow eye. The cover is white and semi translucent so as to prevent a dark shadow over the covered eye from interfering with the vision in the fellow eye.

A rigid sidearm joining the eye-cover to the campimeter helps the patient to maintain the correct working distance of 16 inches (40cm). The arm also ensures that the left or right eye is examined with the proper test grid for that eye.

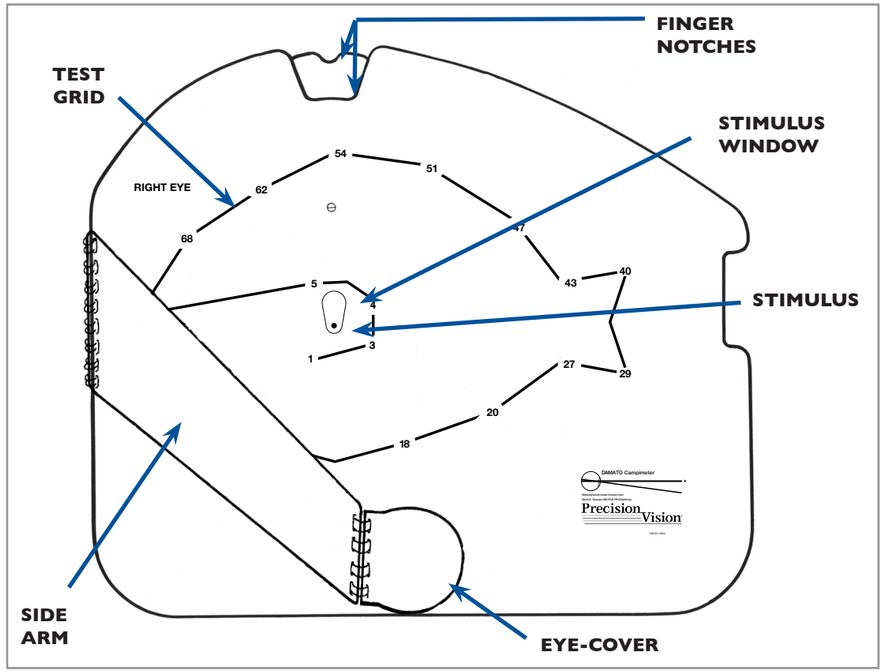


FIGURE 1. The DAMATO Multifixation Campimeter for Glaucoma with card, sidearm, eye-cover, test grid, stimulus window, stimulus, finger notches on disc and card, and stimulus description.

SAMPLE EXAMINATION PROCEDURE

A typical examination may proceed as follows:

Examiner: *(Showing the campimeter to the patient...)* This test is designed to detect any abnormal blind spots in your field of vision, which might be caused by glaucoma.

Examiner: *(Writing the patient's details on the record sheet...)* First, I would like to complete this form. Can I have your name, please .... and your date of birth. Thank you *(Examiner inverts record sheet)*. Do you wear reading glasses?

Patient: Yes, would you like me to wear them?

Examiner: Yes, please.

Examiner: Please hold the chart, just here, with your right hand, and this flap with your left hand, and cover your left eye. You can rest your elbows on the desk to feel more comfortable.

Examiner: Please do not tilt your head sideways toward your shoulder. If I tilt the chart backwards, like this, you can sit up straight without developing a stiff neck. *(Examiner pulls the top of the chart away from the patient, to tilt the chart upward)*.

Examiner: *(Dialing the disc to place the selected stimulus at the centre of the window...)* Notice the window at the center of the chart, with the grey spot in the middle. Can you see the spot clearly?

Patient: No, the spot is blurred because I am looking at it through the distance segment of my bifocals.

Examiner: In that case, please tilt your chin up a little while I adjust the position of the chart *(Examiner slides the lower edge of the chart toward the patient's side of the desk)*.

Patient: I can see the spot clearly now, through the near segment of my bifocals.

Examiner: Good. Do not worry if the numbers are blurred, as long as the spot remains in focus.*(Examiner dialing the disc to make the spot disappear...)* You will notice that the spot has disappeared. Keep looking at the window, please, and say "Now" as soon as the spot appears. *(Examiner slowly and silently presents the stimulus)*.

Patient: Now. *(Examiner immediately dials the disc so that the 10% stimulus is ready for presentation)*.

RESULTS

Documentation of the Results

If a number is associated with non-awareness of the 10% stimulus, draw an oblique line (/) through the corresponding number on the record sheet. If the 25% stimulus is missed, draw a cross (X) through the number. A table on the record sheet shows the appropriate symbol for each stimulus *(FIGURE 8)*.

Use a pencil or special ball pen that allows you to delete errors.

Stimulus	Missed
Symbol	/
10%	X

FIGURE 9.
Symbol Table. The table shows the appropriate symbol for each stimulus.

Interpretation of the Results

At the end of the examination, invert the record sheet to assess the results.

In a patient who is less than 50 years old, the result is abnormal if the 10% stimulus is missed at any point other than in the blind-spot area (i.e., numbers 8 and 76).

In all older patients, the result is abnormal if the 25% stimulus is missed at any point other than the blind-spot area. If the 10% stimulus is missed at 12.5-24°, the result is suspicious, but if it is missed in the paracentral areas the result is abnormal.

HYGIENE

For every new patient, wrap the eye-cover in fresh, facial tissue paper, or sterilize the cover with an appropriate solution which contains alcohol. Do not spill any alcohol on the chart, which should be cleaned regularly with soap and water.

The fixation targets are numbered to simplify communication with the patient and recording of the results. The numbering is nonconsecutive so the examiner can ensure that the patient actually looks at the numbers without guessing *(FIGURE 2, BELOW)*.

The lines linking the numbers direct the eye movements from one fixation target to the next.

The first four numbers test paracentral points, which are most likely to be normal, so that a good working relationship can be established between patient and examiner. Rarely, glaucomatous visual field loss commences paracentrally, so that abnormality may be detected at this stage in some patients.

The fifth number is a blind-spot check, to confirm that the patient is cooperating and to check that the chart is positioned correctly.

The next 14 numbers (four of which examine for a nasal step at 20˚ and 24˚) test visual field locations first affected by glaucoma in most patients, avoiding artefacts caused by the upper eyelid and retinal blood vessels.

The final number is a second blind-spot check, to ensure that the patient has cooperated throughout the examination.

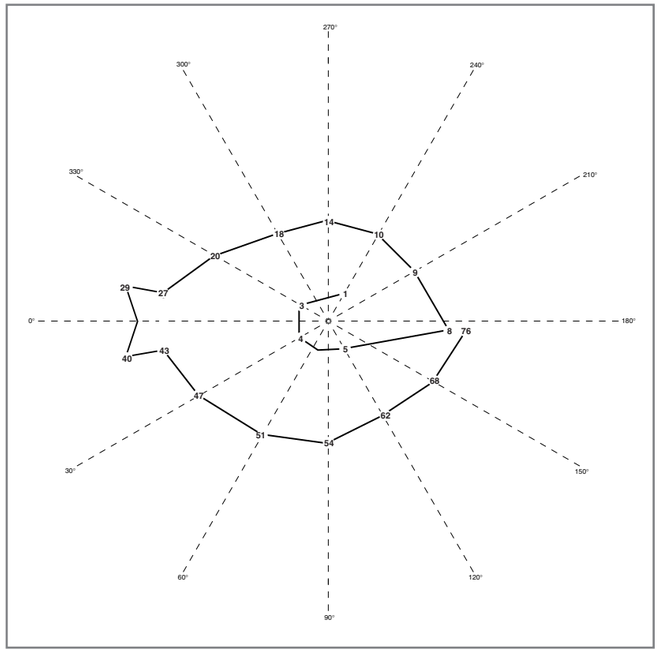
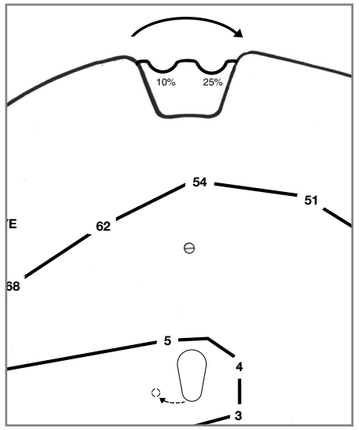
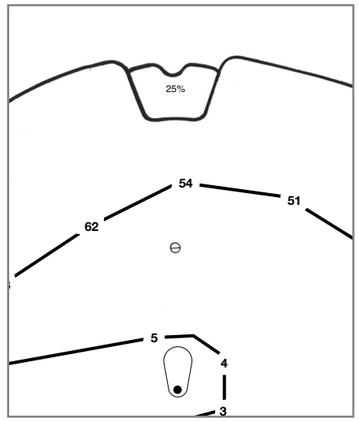
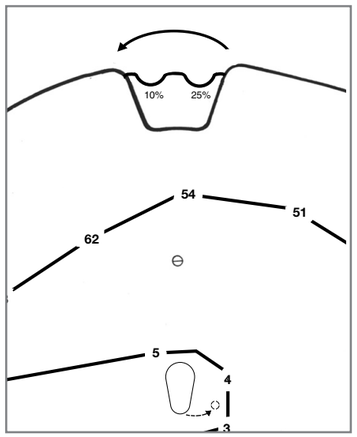


FIGURE 2.
The test grid. The meridians refer to stimulus locations with respect to the fixation targets and are adjusted by 180° because the eye moves during the examination instead of the stimulus.







The test stimuli are grey-on-white to minimize the effects of variable lighting conditions. The sensitivity of the test is varied by selecting between the 10% and 25% contrast stimuli. Both these stimuli subtend a visual angle of 0.5° to minimize artefact caused by refractive errors.

The stimuli are printed on a stimulus disc inside the card so that the selected stimulus can be made to appear briefly in the central window by dialing the disc *(FIGURE 3)*.

The stimulus window is shaped so as to minimize shadowing on the disc. At the level of the stimulus the window is 10mm wide so that the stimulus position has an error of less than 1˚ on each side of its central position.

Notches on the disc and card help the examiner to position and move the finger properly when dialing the disc so that the stimulus is presented efficiently.

Intermittent stimulus presentation standardizes stimulus intensity and prevents the patient from guessing.

Blank stimuli (0%) prevent patients from using auditory or visual clues to guess when the stimulus is presented.

The record sheet has a miniature version of the test grid for each eye for documentation of the numbers associated with disappearance of the stimulus. The test grids on the record sheet are printed in a light color so symbols drawn with blue or black ink will be clearly visible.

FIGURE 3. When the finger is moved from one side of the notch to the other, you are ready for presentation of the next stimulus.

FIGURE 8 C-E.
Visual fields of a 54-year-old man with glaucoma.

FIGURE 8 C

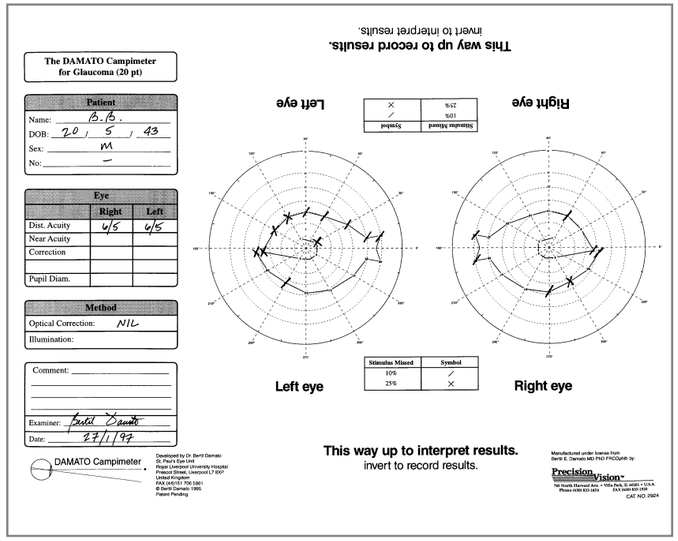


FIGURE 8 D

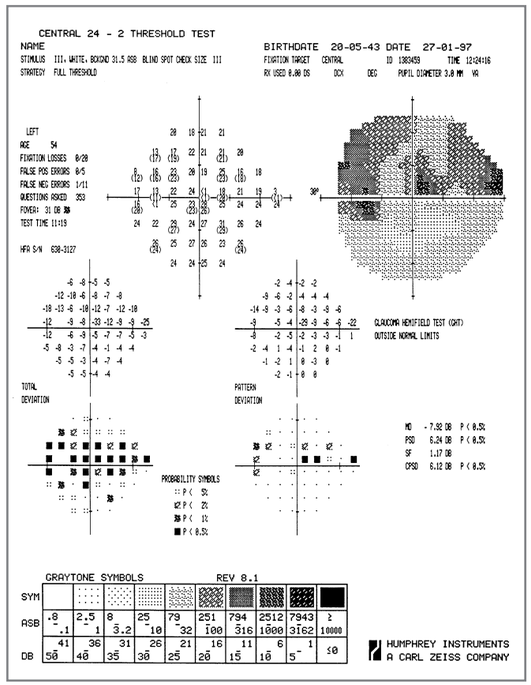


FIGURE 8 E

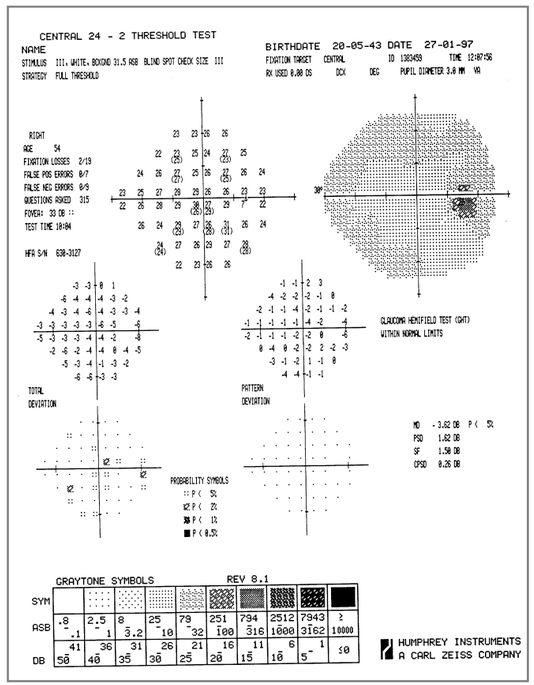


FIGURE 8 A

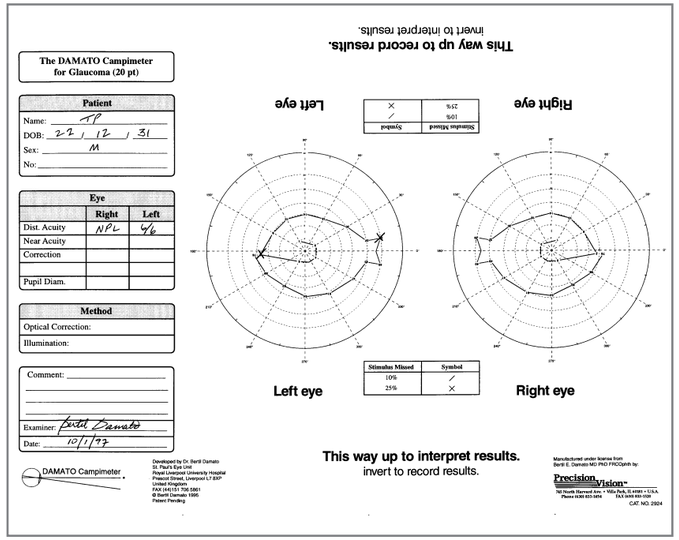


FIGURE 8 B

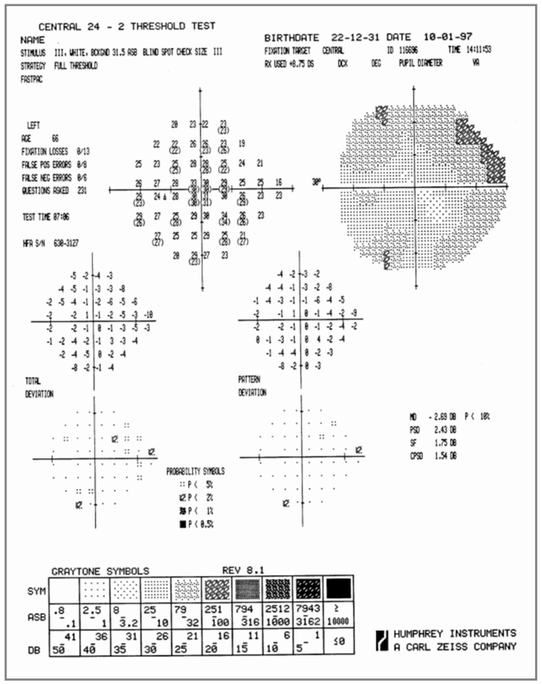


FIGURE 8 A-B.
Left visual field of a 66-year-old man with absolute glaucoma in the right eye and an early nasal step in the left eye.

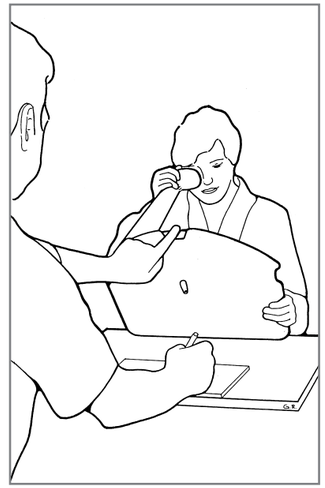


FIGURE 4.
Make sure the patient is sitting comfortably at a desk or table.

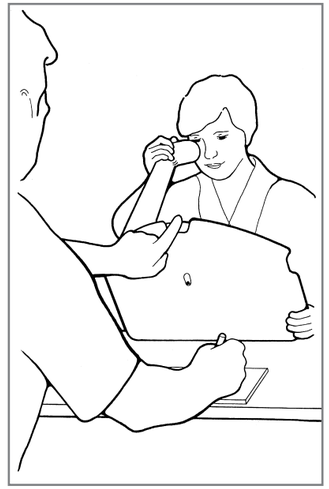


FIGURE 5.
Correct examination position. Sit in front of the patient so you can watch both eyes.

METHODS

Preparation for the Exam

Seat the patient comfortably at a desk *(FIGURE 4)*. Alternatively, you may prefer to use a music stand so that the height and angle of the chart can be easily adjusted.

Confirm that the patient is wearing any required optical correction (i.e., reading glasses, bifocals or contact lenses).

Ensure that the screen is well lit (i.e., more than 80 cd.m^2) and that the patient is not dazzled by any oncoming bright lights.

Position yourself in front of the patient so you can observe both eyes and make sure you are comfortable *(FIGURE 5)*.

Write down the patient's particulars on the record sheet and invert the sheet. For recording the results, use writing materials that would allow any errors to be deleted.

Examination of the Left Eye

Avoid lengthy instructions which cause delay and may be misunderstood; a few brief introductory remarks should be adequate.

Place the eye-cover in the patient's right hand and the card in the patient's left hand.

Ask the patient to cover the right eye by holding the

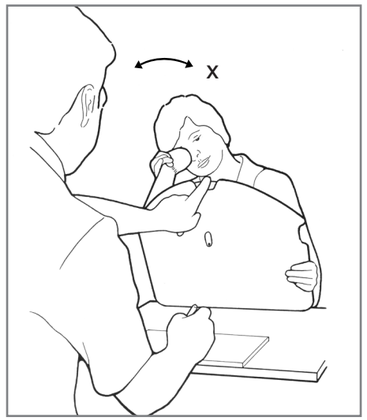


FIGURE 6.
Check that neither the patient's head nor the chart is tilted sideways.

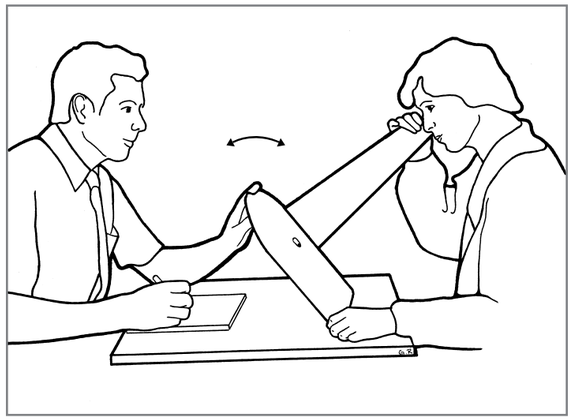


FIGURE 7.
Tilt the card backward or forward until the patient feels comfortable.

cover, folded inward, against the closed eyelid or, if glasses are being worn, against the spectacle lens.

If the patient finds it difficult to hold the eye-cover properly over the eye, then an adhesive eye-pad should be used instead of the eye-cover. In this case, use the sidearm to help the patient maintain the correct working distance from the card.

Avoid any shadows on the test grid.

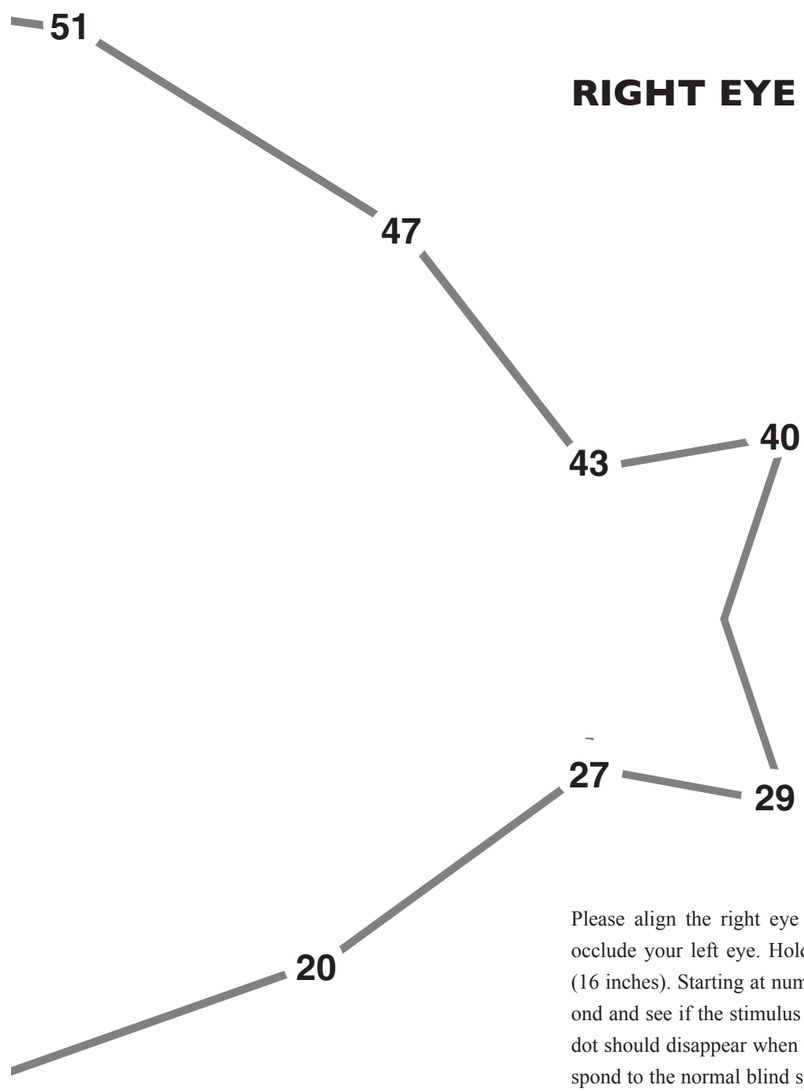
Check that neither the patient's head nor the card is tilted sideways *(FIGURE 6)*.

Adjust the position of the card so that it faces the patient squarely, with the stimulus 16 inches (40cm) directly in front of the eye.

Tilt the card backward or forward until the patient feels comfortable *(FIGURE 7)*.

Place the 10% stimulus at the center of the window. If bifocal or varifocal spectacles are being worn, move the lower edge of the card closer to the patient or ask the patient to tilt the chin up or down so the stimulus is in focus through the near segment.

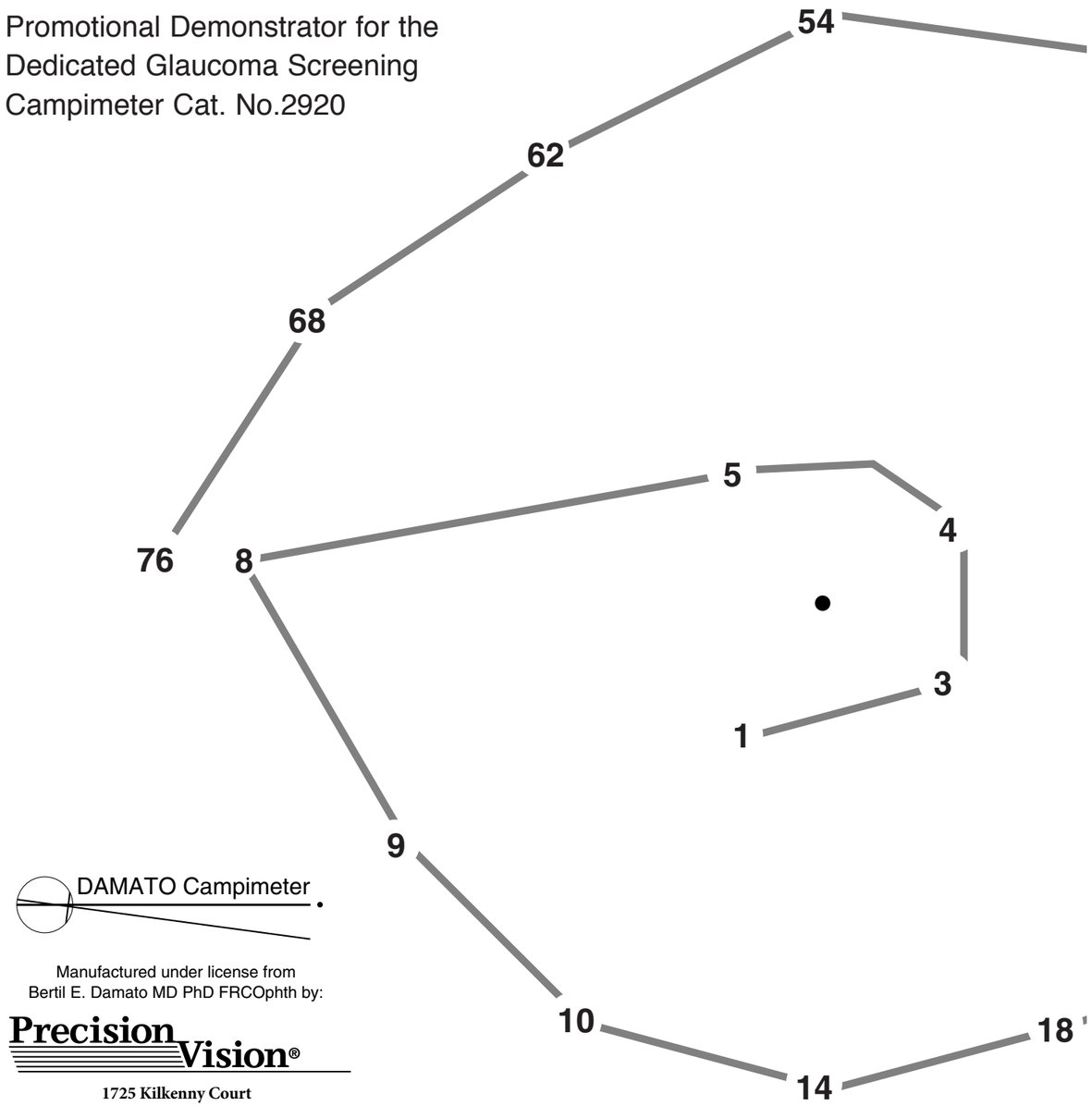
You can check the stimulus position, by looking at the window on either side of the chart.



Please align the right eye over the center stimulus dot and close or occlude your left eye. Hold the demonstrator at approximately 40 cm (16 inches). Starting at number 1, look at each number for about 1 second and see if the stimulus dot is visible in your peripheral vision. The dot should disappear when you look at numbers 8 and 76, which correspond to the normal blind spot.

PLEASE NOTE: This procedure is for demonstration purposes only as the examination is easier and more reliable when performed using the "dial-a-dot" system on the standard Campimeter with the 10% & 25% contrast stimuli.

Promotional Demonstrator for the
Dedicated Glaucoma Screening
Campimeter Cat. No.2920



DAMATO Campimeter

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Patient Instruction

Dial the disc so that the 10% stimulus disappears, then ask the patient to continue to look at the window and to say "Now" when the stimulus reappears. Repeat until the patient responds correctly every time you present the stimulus. You are then ready to begin the examination.

The Examination Proper

Explain that you will now proceed to look for abnormal defects in the field of vision.

Ask the patient to keep looking at the number "1" and to say "Now" when the spot appears. Watching the patient's eye closely, dial the disc slowly until the 10% stimulus appears. Avoid giving any clues (e.g., noise, sudden movement of the hand, etc.) and ensure that the patient's response coincides precisely with the appearance of the stimulus. If the 10% stimulus is missed, then retest with the same stimulus. If the 10% stimulus is missed the second time, then present the 25% stimulus.

Ask the patient to read the next number aloud and to keep looking at that number. As soon as the patient does this, you can present the stimulus.

Repeat with each number in turn.

If the normal blind-spot is found, then reassure the patient that this is normal. If the blind-spot is missed, then check that the fellow eye is well covered and that both the card and the patient's head are straight. If the blind-spot is still missed and if the patient is not wearing bifocals, raise the chart so that it is at eye level or tilt the patient's head forward. If this does not solve the problem, tilt the head first to one side and then to the other side, as in some individuals, the blind-spot is abnormally located.

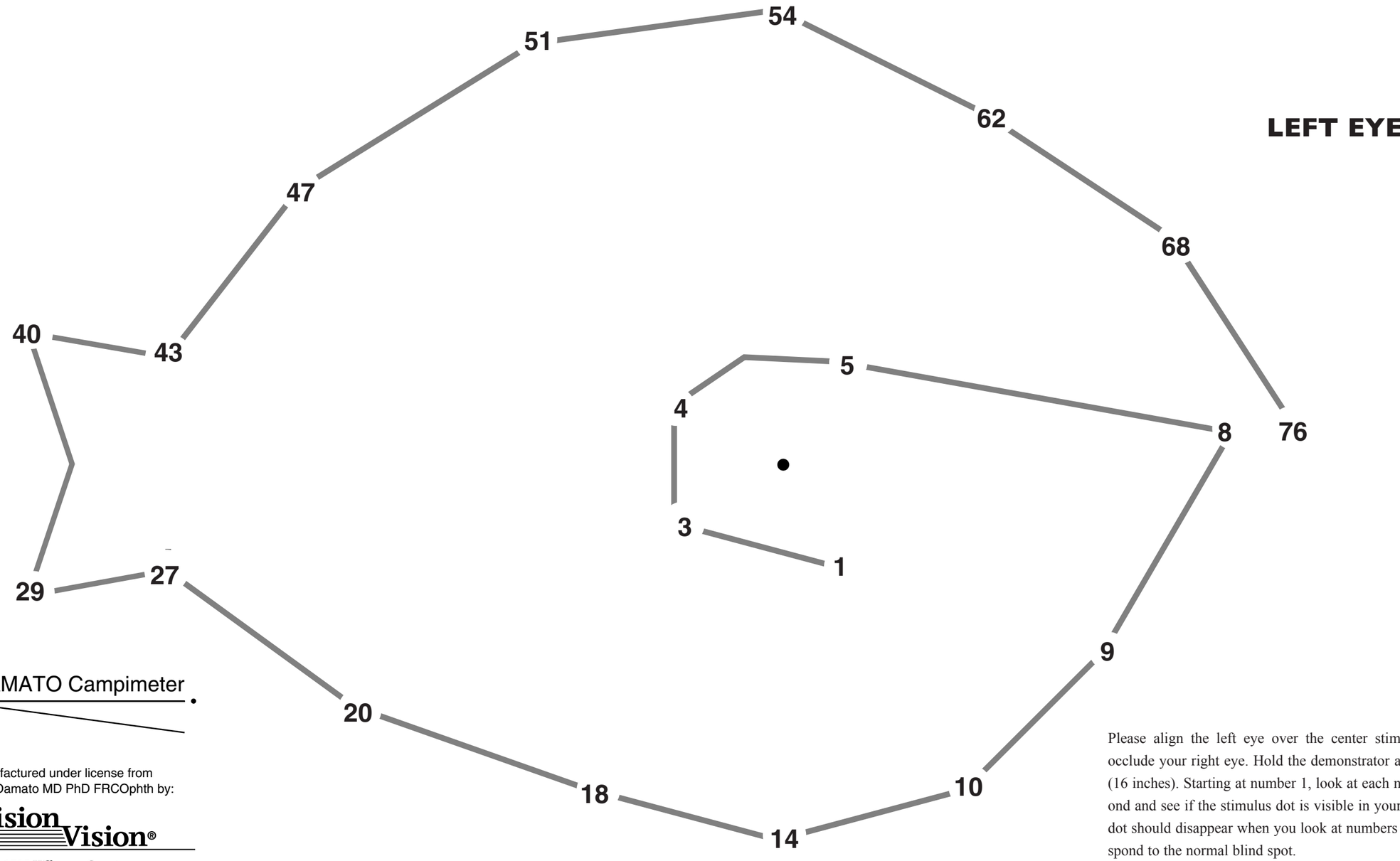
If there is any doubt about the validity of a response, because the patient has moved the eye or because you suspect the patient may have guessed, then immediately retest that point before proceeding with the rest of the examination.

Vary the delay before each stimulus presentation so the patient cannot guess when a stimulus will appear.

When the patient is looking at numbers in the upper part of the test grid, cover the notch on the card with your other hand to prevent the finger movement from distracting the patient.

Examination of the Right Eye

Turn the chart over. Ask the patient to hold the eye-cover against the closed left eye with the left hand, and the right edge of the card with the right hand. Ensure the test grid is still free of shadows.



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Please align the left eye over the center stimulus dot and close or occlude your right eye. Hold the demonstrator at approximately 40 cm (16 inches). Starting at number 1, look at each number for about 1 second and see if the stimulus dot is visible in your peripheral vision. The dot should disappear when you look at numbers 8 and 76, which correspond to the normal blind spot.

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Promotional Demonstrator for the
Dedicated Glaucoma Screening Campimeter
Cat. No.2920

40 cm (16 Inches)