

Stereo Optical Company Vision Tester Slide Package:

Rehab Glare Slide Package

Slide # 1: 3000-171
Slide # 2: 3000-172
Slide # 3: 3000-173
Slide # 4: 3000-174
Slide # 5: 3000-175
Slide # 6: 3000-003
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Slide #11: 2000-148
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STEREO OPTICAL

Slide 3000-171 to 3000-175 “FAR” CONTRAST SENSITIVITY

1. Dial at 1-5 (Yellow) indicator

2. Far Point switch illuminated 

3. Right switch illuminated 

Contrast Sensitivity Test consists of 5 slides.

There are 4 testing strategies available (see Record Form) on the Optec 5000 PG Rehab:

Night testing without Glare | Day testing without Glare | Night testing with Glare | Day testing with Glare

When testing includes all four strategies, begin testing with Night switch illuminated.

1. Ensure that the patient is wearing their usual optical correction or is properly refracted at the test distance.
2. Show the patient the sample patch making the statement, “Each of the circles contain lines, tell me if the top of the lines point to the left, right or up.”
3. Point or instruct the patient to look at ROW A proceeding from left to right having them state the last patch they can see by number and stating which way the top of the lines point. For example: The patient response may be: “A” 6 is UP.
4. If the response is correct, encourage the patient to proceed to each subsequent patch to the right until one incorrect response is obtained. (NOTE: The correct responses are indicated on the recording form.)
5. If the response is incorrect:
 - a. Have the patient look at each subsequent patch to the left until a correct response is obtained.
 - b. Then encourage the patient to proceed to the right until one incorrect response is obtained.
6. Mark the last correct response in the proper location on the recording form, the vertical columns of numbers marked “A” on the scoring pad corresponds to the “A” horizontal row on the test slides. The same is true for columns B,C,D and E on recording form. (See Figure 1)
7. Repeat steps 3-6 on rows B,C,D, and E.
8. Repeat steps 3-7 for the patient’s LEFT eye.
9. To plot the contrast sensitivity curve, connect the marked patient response points.
10. Use the two color pen to distinguish between the right eye and left eye.

REPEAT STEPS 3-8 FOR EACH OF THE 4 TESTING STRATEGIES

FOR ADDITIONAL INFORMATION, SEE “CONTRAST APPENDIX”

F.A.C.T. QUICK TEST

To identify vision loss due to Macular, Retinal, or Optic Nerve Defects, testing Row C may be sufficient. This "Quick Test" provides a quick method of detecting contrast loss.

Individuals whose contrast falls below the normal range are suspect and should be tested using the other frequencies.

RECORDING AND EVALUATION OF RESULTS

1. The last correct response for each row is recorded on the record form.
2. The marked patient response for each contrast sensitivity level are connected with a line.
3. Abnormal contrast sensitivity curves are defined as:
 - a. The curve is not within the normal range (gray area) of the record chart. (See Figure 2).
 - b. The curve of the patient's two eyes differs by more than two contrast values (patches) at any one frequency. (See Figure 3).
 - c. The curve of the patient's two eyes differs more than one contrast value (patch) at two or more adjacent frequencies. (See Figure 4).

Early losses, neurologic, pathologic, or refractive visual problems will have different effects on the contrast sensitivity curve. Losses in the high frequencies usually indicate problems with the macula, which includes refractive problems and macular edema. More severe vision problems may cause degradation of the entire contrast curve. (See Figure 5).

A curve with normal high-frequency contrast sensitivity and abnormal low and/or mid-frequency contrast sensitivity indicates the possibility of a pathologic or neurologic problem.

SNELLEN FUNCTIONAL EQUIVALENTS

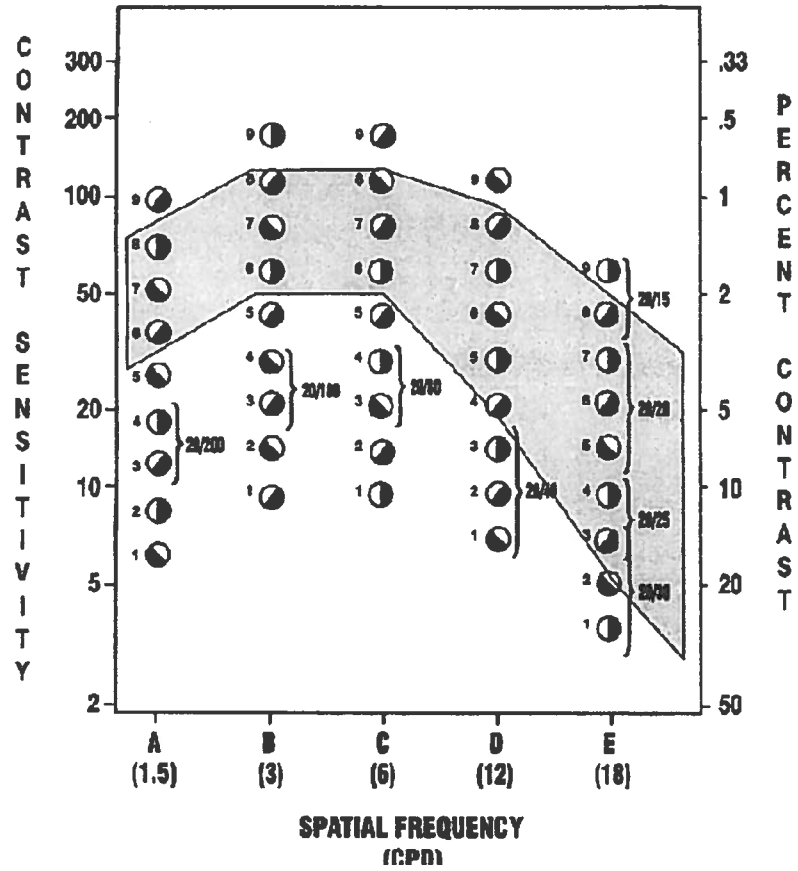
The contrast sensitivity curve can be interpreted in Snellen Functional Equivalents. To obtain the Snellen Functional Equivalent value:

1. Look at the contrast sensitivity curve going from left to right.
2. The first bracket the contrast curve intersects is the Snellen Functional Equivalent.

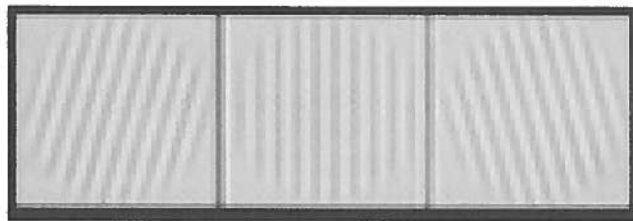
In Figure 2, the Snellen Functional Equivalent for the right eye is 20/100 and 20/15 for the left.

FUNCTIONAL ACUITY CONTRAST TEST (F.A.C.T.)®

FIGURE 1



CONTRAST SENSITIVITY TARGET SAMPLES



RIGHT

UP-DOWN

LEFT

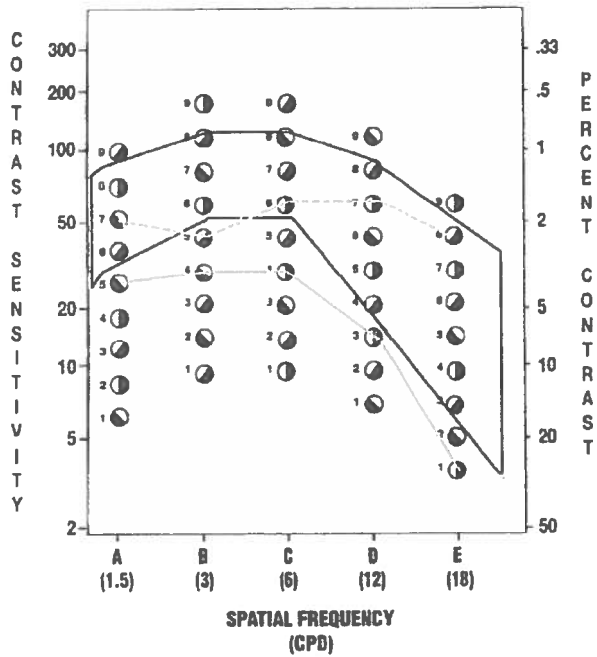


FIGURE 2
Abnormal Curves

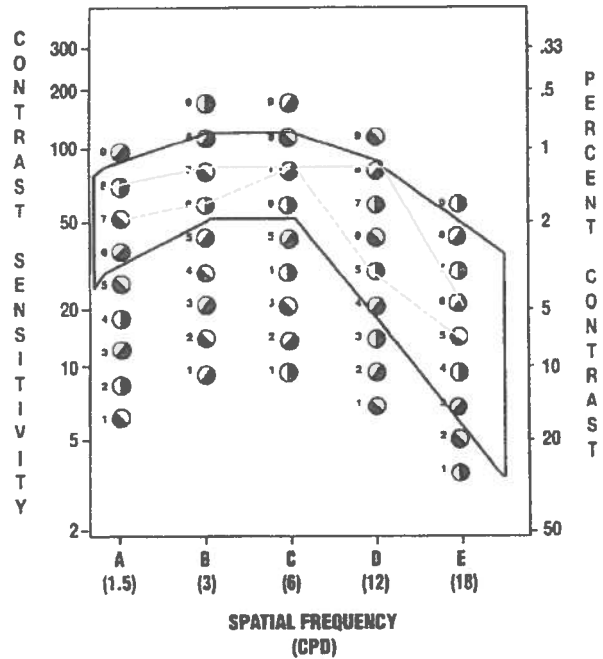


FIGURE 3
Abnormal Curve at D Frequency
for Left Eye

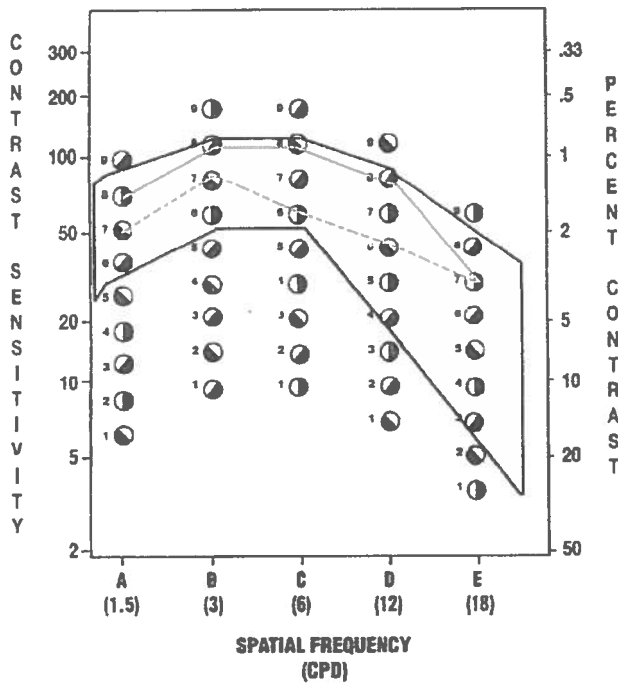
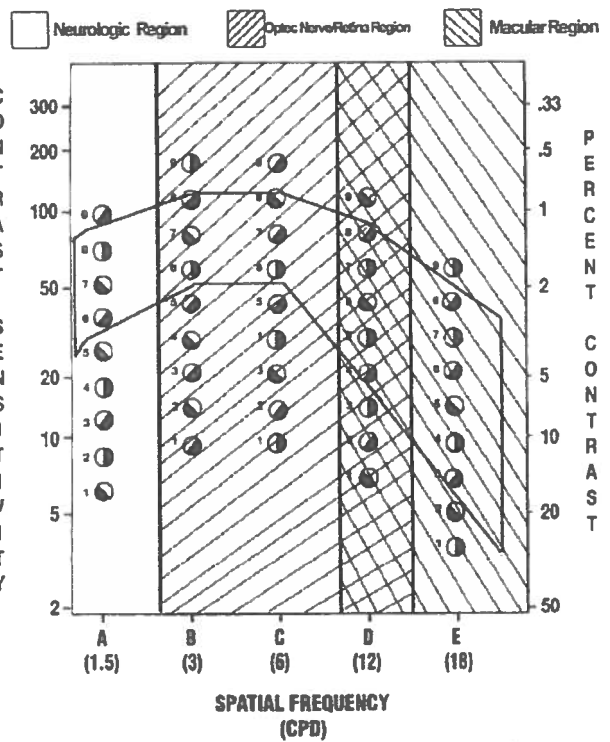


FIGURE 4
Abnormal Curve at the C and D
Frequencies for Left Eye



Segment of the Contrast Sensitivity Curve
Affected During Early Vision Problems

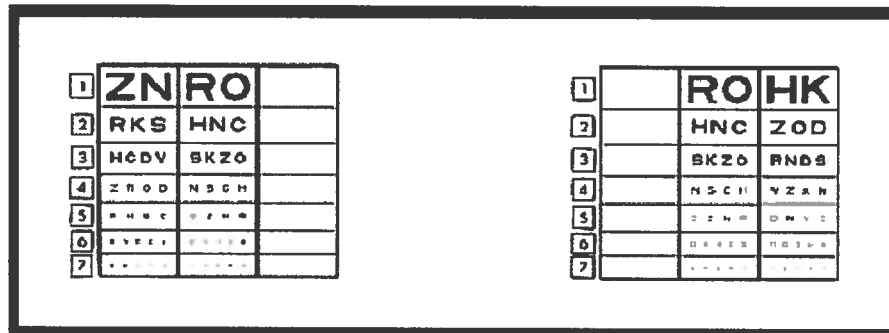
Slide 3000-003 "FAR" VISUAL ACUITY LETTERS

1. Dial at 6 (Yellow) indicator



2. Far Point switch illuminated

3. Right and Left eye switches illuminated  



Questions: "How many columns of letters do you see?" The answer is 3. Ask the subject to read line 5 completely. If this is correct, proceed to line 6, if correct proceed to line 7, if correct, the subject has 20/20 vision or better, at FAR point for the right eye, left eye and both eyes together. The correct scoring key is printed on the record form.

Two or more letters incorrectly identified on any line (3 to 7) PER COLUMN is considered a FAIL for that acuity level IN THAT COLUMN.

A different acuity reading for each column is possible. The center column is critical because this is the binocular acuity test, while the right and left columns are monocular acuity tests.

A monocular (only) acuity test can be administered on the right or left eye by occluding the eye not being tested. With one eye occluded, the subject will only see two columns with letters.

Some of the binocular irregularities that can occur are:

1. Either right or left column appears fuzzy or blurred.
2. A complete lack of targets in either right and left column will indicate a vision problem.
3. An intermittent disappearance of targets in either the right or left column.
4. Failure to fuse the right and left eye area of the slide into three columns of letters.

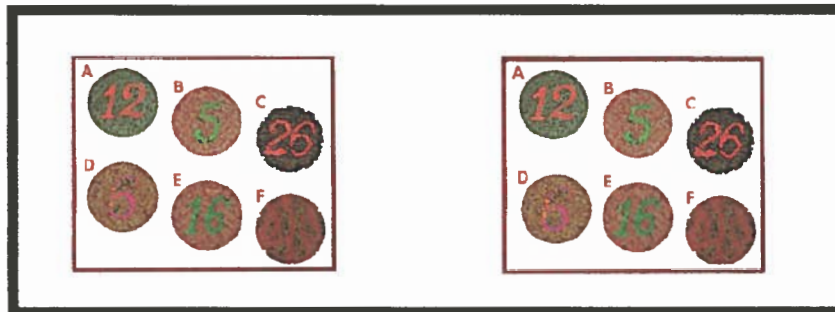
LINE/ACUITY	LEFT EYE	BOTH EYES	RIGHT EYE
1 20/200	ZN	RO	HK
2 20/100	RKS	HNC	ZOD
3 20/70	HCDV	SKZO	RNDS
4 20/50	ZROD	NSCH	VZKN
5 20/40	KHSC	OZNR	DNVC
6 20/30	ONRZV	DKHCS	KDSON
7 20/20	SDCHN	VRZKO	HSNRD

Slide 2000-010 "FAR" COLOR PERCEPTION

1. Dial at 7 FAR (Yellow) indicator.

2. Far Point switch illuminated 

3. Right and Left eye switches illuminated 



This test is a screening for color perception. It will identify deficiencies, but it does not classify them. Six Pseudo-Isochromatic Ishihara Plates are accurately and authentically reproduced for this test. This test is set for a minimal visual acuity of 20/70. If a subject has 20/70 acuity or lower, the subject could fail the test because of low vision, not poor color perception.

QUESTION: Can you identify the numerals in each circle, starting with A?

SCORING: There are a total of 8 numerals in the six circles. For normal color vision, circle F has no numerals in it, color deficient will read a 5. Color-normal subjects will answer the 8 numerals correctly and state there is nothing in circle F. 5 out of 8 numerals correct is mild color deficiency.

For the F.A.A. examination class, I, II, and III the applicant must identify all 8 numerals correctly.

TARGET	A = 1 2	B = 5	C = 2 6	D = 6	E = 1 6	F = Blank
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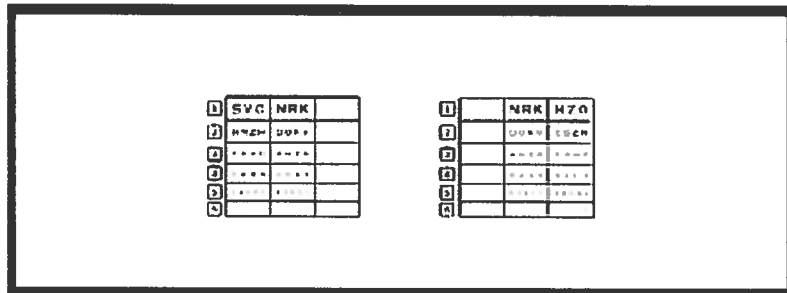
Slide 2000-007 "NEAR" VISUAL ACUITY LETTERS

1. Dial at 8 NEAR (Blue) indicator.

2. Near/Far Point switch illuminated



3. Right and Left eye switches illuminated



Question: "How many columns of letters do you see?" The Answer is 3. Ask the subject to read line 4 all the way across. If correct, proceed to line 5, if correct, proceed to line 6. If line 6 is correct, the subject has 20/20 vision or better at NEAR point for the right eye, left eye, and both eyes together. The correct scoring key is printed on the record form.

Some binocular irregularities that can occur are:

1. Either right or left column appears fuzzy and blurred.
2. A complete lack of targets in either right or left column will indicate a vision problem.
3. An intermittent disappearance of targets in either the right or left column.
4. Failure to fuse the right and left eye area of the slide into three columns of letters.

Two or more letters incorrectly identified on line 3 to 6 PER COLUMN is considered a FAIL for that acuity level IN THAT COLUMN.

A different acuity reading for each column is possible. The center column is critical because this is the binocular acuity test, while the right and left columns are only monocular acuity tests.

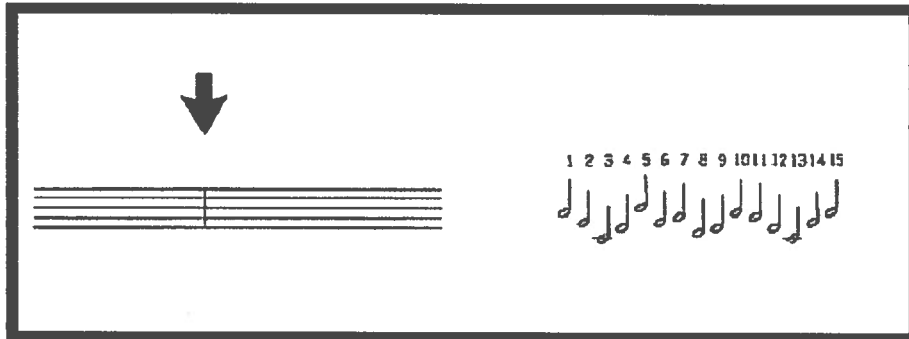
LINE/ACUITY	LEFT EYE	BOTH EYES	RIGHT EYE
1 20/100	SVC	NRK	HZO
2 20/70	RNZH	DOKV	CSZN
3 20/50	CKVD	SNZR	DOHC
4 20/40	VHRN	ODSK	NZCS
5 20/30	HSKRC	NZDOV	ZSHNK
6 20/20	ZONVR	HCSKD	VKCD S

SLIDE 2000-012 "FAR" LATERAL PHORIA

1. Dial at 9 FAR (Yellow) Indicator.

2. Far Point switch illuminated 

3. Right Eye switch illuminated 



Question: "Do you see a series of musical notes?" If yes, ask "How many?" The answer is 15. Tell the subject a musical staff with a white arrow will appear. Simultaneously turn the LEFT occluder switch ON. "Tell me which note the arrow is pointing to."

The arrow pointing to #8 is ideal or orthophoric, pointing between 3 1/2 and 12 1/2 is the accepted norm. 1 to 8 indicates Esophoria, 8 to 15 indicates Exophoria. Each number represents one prism diopter of power.

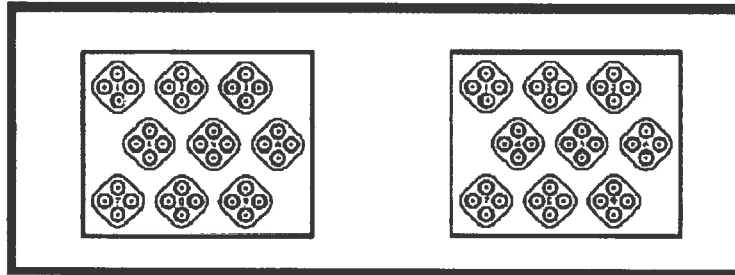
NOTE: This test cannot be given to a subject with vision in only one eye, this is a binocular test only.

Slide 2000-024 "FAR" STEREO DEPTH PERCEPTION

1. Dial at 10 (Yellow) indicator.

2. Far Point switch illuminated 

3. Right and Left eye switches illuminated  



This test measures binocularity. In order to perceive depth perception, both eyes are required to work together. Omit this test, if there is little or no vision in one eye.

The ability to judge relative distances without the aid of monocular clues is the goal of this stereotest. The difficulty to point out "floating" ring increases in each of the nine steps in this series.

Questions: Study target #1. Does the bottom ring seem to be floating toward you? If the answer is "YES", proceed with: In target #2, which ring is floating toward you? #3, #4? This test requires a little extra time, so being patient is extremely important.

On occasion, the subject with good acuity scores will fail to fuse the left and right eye patterns and experience an overlapping of images. Turn the dial back a test so the subject can stabilize fusion, then proceed.



Scoring: Reading all circles correctly through #7 is normal depth perception. Correctly answering through #5 is acceptable depth perception. When the subject misses two consecutive circles, go back to last answer as his correct score.

STEREO DEPTH KEY

1	2	3	4	5	6	7	8	9	
B	L	B	T	T	L	R	L	R	
400	200	100	70	50	40	30	25	20	Angle of Stereopsis in seconds of arc
15	30	50	60	70	75	82	90	95	Shepard-Fry percentages

The angle of Stereopsis-a defined depth, the greater the number, the more obvious the stereopsis. Shepard-Fry Percentages-The amount of visual efficiency required to determine a particular angle of stereopsis-85% is considered average.

SLIDE 2000148 ROAD SIGN RECOGNITION & STEREO DEPTH PERCEPTION TEST

1. FAR Point switch illuminated 
2. Right and Left switches illuminated 
3. Dial 11 at YELLOW Indicator

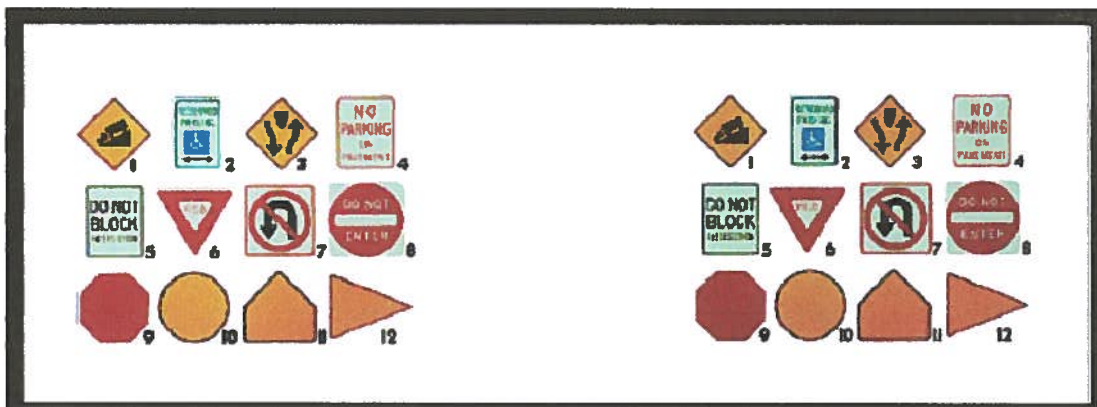
This test measures the ability to recognize traffic signs and depth perception. First, have the test subject identify each sign. Secondly, ask the test subject, "Which signs are floating towards you"?

SIGN RECOGNITION



- | | |
|------------------------|---------------------------------------|
| 1. Hill | 7. No U Turn |
| 2. Handicapped Parking | 8. Do Not Enter |
| 3. Divided Highway | 9. Stop Sign (Red Octagon) |
| 4. No Parking | 10. Railroad Crossing (Yellow Circle) |
| 5. Regulation | 11. School Zone (Yellow Pentagon) |
| 6. Yield | 12. No Passing (Yellow Triangle) |

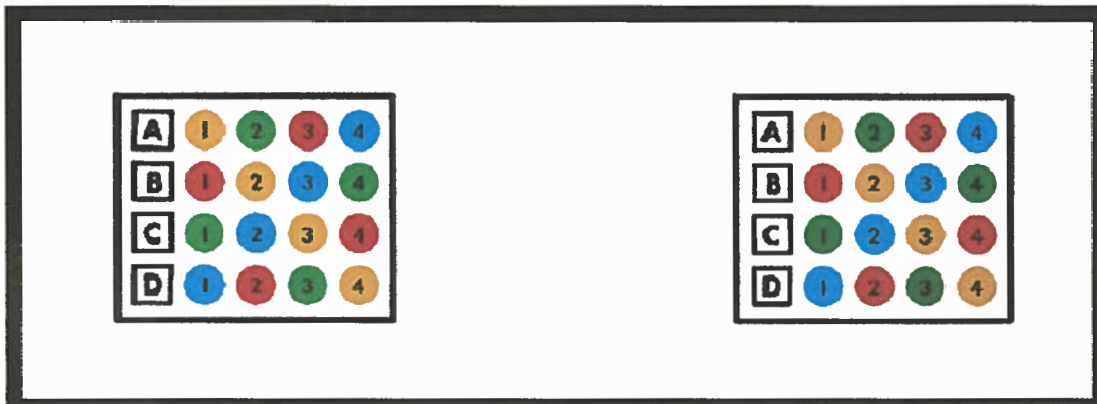
DEPTH PERCEPTION

- #3 Divided Highway (581 Seconds of Arc)
 #6 Yield (323 Seconds of Arc)
 #11 School Zone (145 Seconds of Arc)



Slide 2000-149 "FAR" Color Identification

1. FAR Point switch illuminated 
2. Right and Left switches illuminated 
3. Dial 12 at YELLOW indicator.



This test consists of 4 lines of circles each with a number in the center. Each row has a circle with the colors blue, red, amber and green present.

Ask the subject to read what colors are in each numbered circle.

Line A	1-Amber	2-Green	3-Red	4-Blue
Line B	1-Red	2-Amber	3-Blue	4-Green
Line C	1- Green	2-Blue	3-Amber	4-Red
Line D	1-Blue	2-Red	3-Green	4-Amber

The subject must answer all four correctly in any given line to pass the test. Any missed circles in any given line is a fail.