

USAARL Report No. 87-11



**Compendium of
US Army Visual
Medical Fitness Standards**

By

**David J. Walsh
Richard R. Levine**

Sensory Research Division

August 1987

Approved for public release; distribution unlimited.

USAARL

Notice

Qualified requesters

Qualified requesters may obtain copies from the Defense Technical Information Center (DTIC), Cameron Station, Alexandria, Virginia 22314. Orders will be expedited if placed through the librarian or other person designated to request documents from DTIC.

Change of address

Organizations receiving reports from the US Army Aeromedical Research Laboratory on automatic mailing lists should confirm correct address when corresponding about laboratory reports.

Disposition

Destroy this document when it is no longer needed. Do not return it to the originator.

Disclaimer

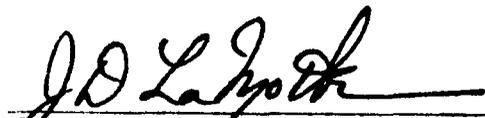
The views, opinions, and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other official documentation. Citation of trade names in this report does not constitute an official Department of the Army endorsement or approval of the use of such commercial items.

Reviewed:

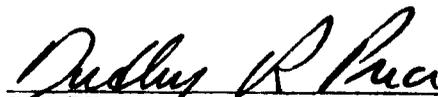


BRUCE C. LEIBRECHT, Ph.D.
LTC, MS
Director, Sensory Research
Division

Released for publication:



J. D. LaMOTTE, Ph.D.
COL, MS
Chairman, Scientific
Review Committee



BUDLEY R. PRICE
Colonel, MC
Commanding

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified		1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION / AVAILABILITY OF REPORT Distribution Unlimited	
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE			
4 PERFORMING ORGANIZATION REPORT NUMBER(S) USAARL Report No. 87-11		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION U.S. Army Aeromedical Research Laboratory	6b. OFFICE SYMBOL (if applicable) SGRD-UAS-VS	7a. NAME OF MONITORING ORGANIZATION U.S. Army Medical Research and Development Command	
6c. ADDRESS (City, State, and ZIP Code) Fort Rucker, AL 36362-5292		7b. ADDRESS (City, State, and ZIP Code) Fort Detrick Frederick, MD 21701-5012	
8a. NAME OF FUNDING / SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (if applicable)	9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State, and ZIP Code)		10. SOURCE OF FUNDING NUMBERS	
		PROGRAM ELEMENT NO. 62777A	PROJECT NO. 3E162777A879
		TASK NO. BG	WORK UNIT ACCESSION NO. 171
11 TITLE (Include Security Classification) (Unclassified) Compendium of U.S. Army Vision Medical Fitness Standards			
12. PERSONAL AUTHOR(S) David J. Walsh and Richard R. Levine			
13a. TYPE OF REPORT Final Report	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day) August 1987	15. PAGE COUNT 67
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
20/06			
19. ABSTRACT (Continue on reverse if necessary and identify by block number) This report reviews vision standards pertaining to entry onto active duty, retention, and mobilization of officer and enlisted personnel in the U.S. Army. It also contains current vision requirements for each enlisted and warrant officer military occupational specialty (MOS) and commissioned officer specialty skill identifier (SSI). Also summarized are "special" vision standards with application either to all personnel, to a specific sub-group, or a select few. These include, as examples, particular vision requirements for flying duty, marine diving, military driver's licensing, special operations training and assignment, and admission to the U.S. Military Academy, Reserve Officer Training Corps, and Officer Candidate School. All standards are referenced to their appropriate governing published regulation. Confusion within and contradictions to existing regulatory requirements are discussed as appropriate.			
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION Unclassified	
22a. NAME OF RESPONSIBLE INDIVIDUAL David J. Walsh		22b. TELEPHONE (Include Area Code) (205) 255-6812	22c. OFFICE SYMBOL SGRD-UAS-VS

DD Form 1473, JUN 86

Previous editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

Table of contents

	Page no.
Introduction.....	3
Physical profile serial - PULHES.....	3
Visual standards terminology.....	4
1. Visual acuity.....	5
2. Stereopsis (depth perception) and stereoacuity.....	6
3. Normal color vision and red/green color discrimination.....	6
4. Additional definitions.....	9
General standards.....	9
Special commissioned officer vision standards.....	12
Special warrant officer vision standards.....	19
Special enlisted personnel vision standards.....	26
Additional special vision standards.....	44
1. Flying duty (flight status).....	44
2. Airborne, Ranger, and Special Forces training and duty.....	48
3. Free fall parachuting and marine diving.....	49
4. Selection and training of officer volunteers for Explosive Ordnance Disposal (EOD) duty.....	50
5. Military driver's license.....	50
a. Visual acuity.....	50
b. Visual field.....	50
c. Depth perception and color vision.....	50
6. Army Drill Sergeant Program.....	51
7. Nuclear power plant personnel.....	51
8. US Military Academy (USMA) and Reserve Officer Training Corps (ROTC) Scholarship Programs.....	51
9. Officer Candidate School (OCS).....	51
Retention standards.....	52
Mobilization standards.....	53
References.....	54
Appendix A. Definitions and abbreviations.....	56

List of figures

Figure	Page no.
1. The Armed Forces Vision Tester.....	5
2. The Verhoeff Stereopter used to measure stereopsis.....	7
3. Titmus Stereo Circles for stereopsis measurement.....	8
4. FALANT--Farnsworth Lantern for testing red-green color discrimination.....	10

List of tables

Table	Page no.
1. General vision standards: Requirements for appointment, enlistment and induction.....	11
2. Special visual standards for commissioned officer.....	12
3. Commissioned officer SSIs/titles.....	13
4. Special visual standards for warrant officers.....	20
5. Warrant officer MOSs/titles.....	23
6. Special vision requirements for enlisted personnel.....	28
7. Enlisted personnel MOSs/titles.....	33
8. Classes of medical standards for flying duty.....	45
9. Common flying duty visual standards.....	46
9A. Minimum values of visual accommodation for flying duty.....	47
10. Visual standards differentiating specific flight classes.....	47
11. Exceptions to flying duty visual standards for senior career officers.....	48
12. Special visual requirements for Airborne, Ranger, and Special Forces training and duty.....	48
13. Special visual requirements for free fall parachuting and marine diving training.....	49
14. Special visual requirements for entrance into the US Military Academy (USMA) and the Army Reserve Officer Training Corps (ROTC) Scholarship Programs.....	51
15. Visual standards for retention.....	52
16. Visual standards for mobilization.....	53

Introduction

This report reviews vision standards pertaining to entry onto active duty, retention, and mobilization of officer and enlisted personnel. It also contains specific vision requirements for each enlisted and warrant officer military occupational specialty (MOS) and commissioned officer specialty skill identifier (SSI). Additional sections include "special" vision standards with application either to all personnel, to a specific subgroup, or to a select few. These include, as examples, particular vision requirements for flying duty, marine diving, military driver's licensing, special operations training and assignment, and entrance into the US Military Academy, Reserve Officer Training Corps, and Officer Candidate School. The information contained in this report has been extracted primarily from current Army regulations, but additional written sources were consulted as well. The currency of this document is based, therefore, on the currency of the referenced materials. (Sources of standards information are cited in appropriate sections of the text and compiled in References.) In many instances, personnel proponents at service schools or assignment offices were consulted to verify or clarify the published regulatory requirements.

In addition to the information on vision requirements, the report contains standards for ocular mobility and motility contained in various sections labelled "Eyes" throughout AR 40-501, "Medical Fitness Standards for Appointment, Enlistment, and Induction." Standards pertaining to the physical health of the eye and visual system, however, are not presented; this information can be found in appropriate sections of AR 40-501.

Like other medical standards, the application of vision standards can be subject to a waiver process. A waiver for a medical deficiency is an administrative procedure which permits an individual to achieve a certain status (e.g., flight status or MOS qualification), or continue in one, despite a disqualifying condition. Conversely, the regulatory standards may be supplemented locally. These additional, more stringent, visual standards, though found rarely, are discussed in appropriate sections below.

Physical profile serial - PULHES

The physical profile serial (AR 40-501) is a multiservice classification of functional abilities in terms of six factors designated by the letters P-U-L-H-E-S. The serial indicates the functional capacities of particular organs or bodily systems, which, in turn, relate to the performance of military duties. In particular, the factors are named: P = physical capacity or stamina, U = upper extremities, L = lower extremities, H =

hearing and ear, E = eyes, and S = psychiatric. According to AR 40-501, the "E" factor includes visual acuity and diseases and defects of the eye. In using the physical profile system, each of the six factors is given a numerical designation from 1 to 4, with 1 indicating a high level of medical fitness and medically unlimited military assignments.

The physical profile serial is used by the Army to designate the minimum required physical standards for each enlisted military occupational specialty listed in AR 611-201, "Enlisted Career Management Fields and Military Occupational Specialties." The following standards apply to PULHES factor "E" (eyes and vision) as contained in AR 40-501:

- "1" - Uncorrected visual acuity no worse than 20/200 in each eye and correctable to 20/20 in each eye.
- "2" - Uncorrected distant visual acuity of any degree correctable to at least:
 - 20/40 in the better eye and 20/70 in the worse eye, or
 - 20/30 in the better eye and 20/100 in the worse eye, or
 - 20/20 in the better eye and 20/400 in the worse eye.
- "3" - Uncorrected distant visual acuity of any degree which is correctable to at least better than 20/40 in the better eye or an acute or chronic eye disease not falling below retention standards.
- "4" - Below standards for retention contained in AR 40-501.

Vision standards terminology

Various nonmedical source documents contain visual requirements in addition to those described in AR 40-501. The following terminology will be used in this report to reflect the terminology used currently in the various source documents defining vision standards and requirements for Army personnel.

1. Visual acuity:

Visual acuity is based upon the ability to recognize high contrast letters of a specific size. Standard tests for this measurement include projected letter charts, wall charts, or letter charts contained in vision testers such as the Armed Forces Vision Tester (Figure 1).

While medical visual acuity requirements are specified in terms of standard Snellen notation, some administrative regulations use very general, descriptive, terminology to define standards. For example, "good vision" and "good near vision" are phrases used extensively in AR 611-112, "Manual of Warrant Officer Military Occupational Specialties," to specify job-related vision requirements. Such specifications are not expressed in terms of a required visual acuity. Based upon information provided by personnel proponents, these vision requirements should be considered more like working definitions,

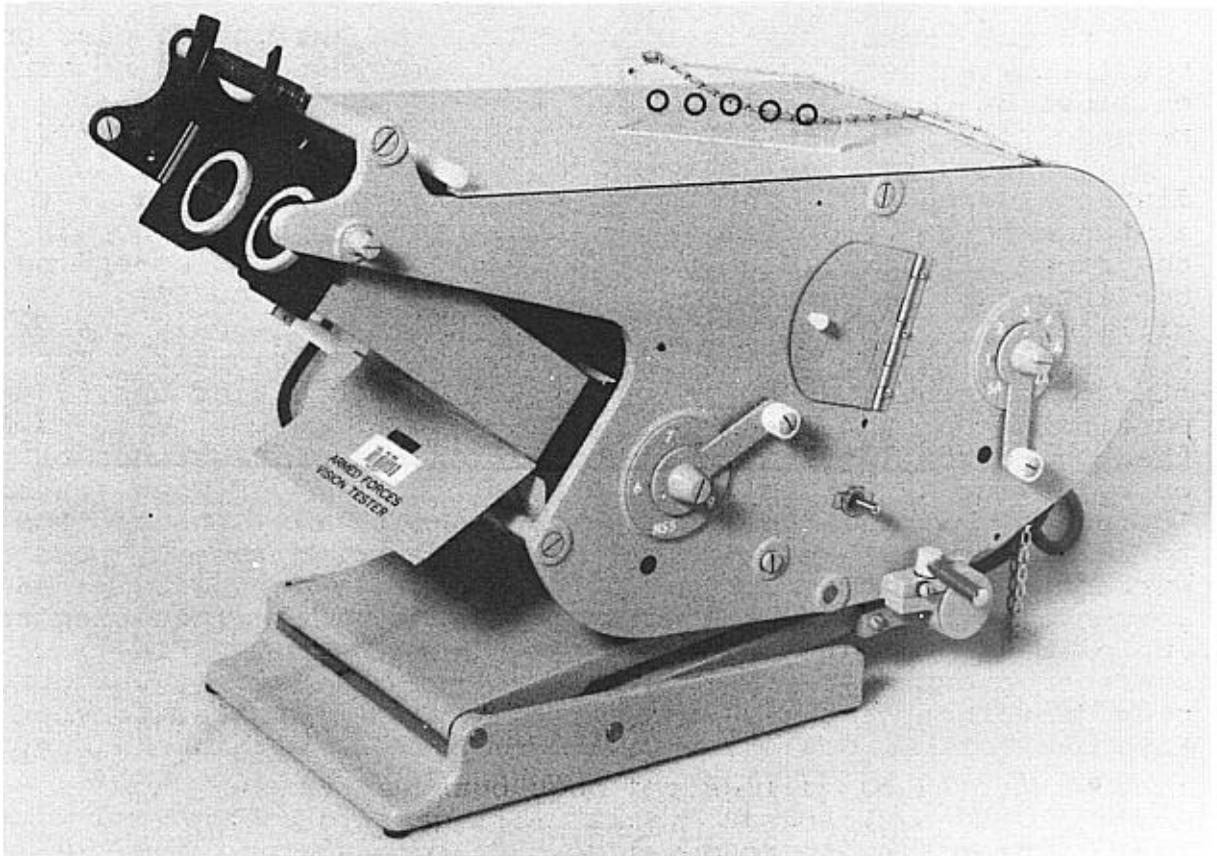


Figure 1. The Armed Forces Vision Tester.

i.e., desirable characteristics based on an individual's medical history or on a demonstrated history of satisfactory job performance.

2. Stereopsis (depth perception) and stereoacuity:

Stereopsis is the perception of three-dimensional visual space by the use of binocular cues. Stereopsis is restricted to relatively short visual distances (100 to 200 meters) where such cues are effective. In addition to binocular cues, monocular cues play a role in the estimation of the relative distance of visual objects, i.e., depth perception. Stereoacuity, a measure of stereopsis, is tested by comparing the relative distance of two objects in free space and measuring the smallest difference between the two that can be detected. Unlike visual acuity, there are no clinical tests for stereoscopic acuity that are considered standard. However, an obtained threshold of 15 to 30 seconds of arc (perceived separation) in the existing clinical tests may be regarded as excellent.

Normal stereopsis is indicated by the ability to pass one of the following tests: Armed Forces Vision Tester with no errors on lines B, C, or D (43, 32, and 27 seconds of arc, respectively), or the Verhoeff Stereopter with no errors (Figure 2). Although not indicated in AR 40-501, the Verhoeff is distance dependent. For flying duty examinations, the test distance to be used is 1 meter. This equates to stereopsis in the range of approximately 30 to 37 seconds of arc depending on the interpupillary distance of the observer (58 to 72 millimeters). AR 611-201 includes another stereopsis tester and a procedural modification for the Verhoeff Stereopter. The stereopsis requirement for two enlisted specialties can be met by passing either the Titmus Stereo Circles (Figure 3) with no more than one error (minimum stereopsis possible = 50 seconds of arc), or by having no errors on the Verhoeff Stereopter when tested at 16 inches. At this test distance, the disparity ranges from 187 to 232 seconds of arc -- a rather lenient requirement. One warrant officer specialty requires (probably erroneously) 35 percent (not seconds of arc) stereoscopic acuity (equating to approximately 172 seconds of arc) as tested on the M1A1 stereoscopic tester. The latter instrument, largely unknown, has been described by the personnel proponent as similar to the Keystone Tele-Binocular, but it is no longer within the Army inventory.

3. Normal color vision and red/green color discrimination:

Normal color vision is defined by the ability to pass one of the pseudoisochromatic plate (PIP) tests. For the 17-plate PIP,

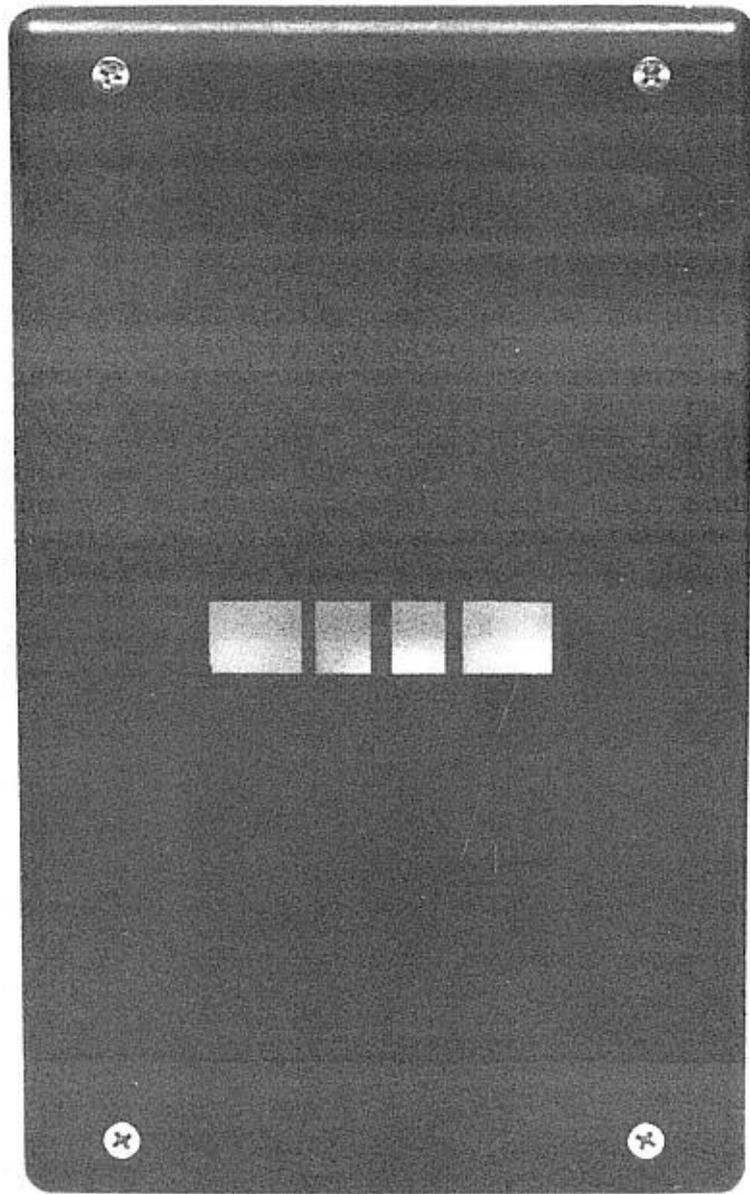


Figure 2. The Verhoeff Stereopter used to measure stereopsis.

14 plates must be identified correctly (failure = 4 or more errors). On the 14-plate PIP, 10 plates must be identified (failure = 5 or more errors). The PIPs are the most commonly used screening tests with the ability to determine normal color vision. A number of occupational specialties and special duties, e.g., flying duty, allow for an alternate test to be used in lieu of the PIP. Tests other than PIP fall into the category of red/green discrimination.

Red/green (R/G) color discrimination is defined as the ability to distinguish between the colors red and green. The tests used to determine this ability vary from the more refined lantern tests to very gross discriminations.

In AR 611-201, for enlisted specialties, R/G color discrimination is the ability to distinguish between red and green, either by printed chart, a projected chart, or by any other clinically valid method.

AR 40-501, at one location, describes color blindness as the "inability to distinguish and identify without confusion the color of an object, substance, material, or light that is uniformly colored a vivid red or vivid green." At another location, for the R/G discrimination requirement, the candidate must "be able to identify without confusion the colors vivid red and vivid green." Airborne and Special Forces personnel must be

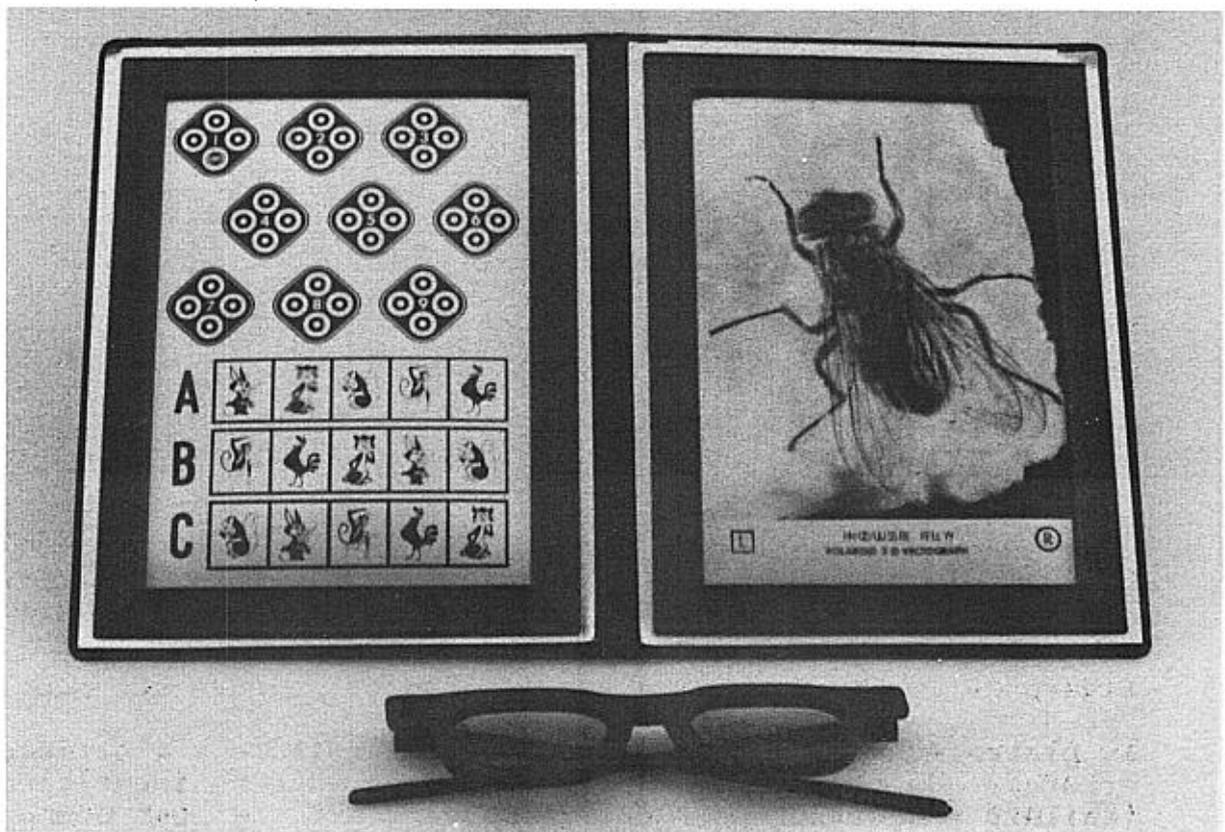


Figure 3. Titmus Stereo Circles for stereopsis measurement.

able to "identify red and/or green" for training, yet must be able to "identify red and green" for duty. For one marine diving MOS, a waiver for color vision can be granted "if the examinee can correctly identify the red and green colors used in diving operations. Such testing will include sufficient repetitions to insure against examinee passing by chance." For several specialties, the methods used to determine R/G discrimination are limited to use of the Ophthalmological Projector or the Stereoscope, Vision Testing.

The lantern tests, which examine the ability to recognize color of a small signal light, provide a more refined procedure for testing the ability to discriminate between colors. Even though these tests can be used in lieu of a PIP test to meet certain color vision requirements, passing one of the lantern tests does not equate to having normal color vision. Since the duty requirements of specialties are diverse and may require normal color vision, substitution of lantern test results for the PIP test should only be made where specifically indicated. The commonly found lantern tests are the Farnsworth Lantern (FALANT; Figure 4) and the Williams Lantern (although the personnel proponent advocating use of the latter states that it is no longer used within his career management field).

The criteria for passing the FALANT test can vary. The instructions which accompany the test provide contingency criteria. The individual passes if he identifies all nine test lights on the first run. However, if any are missed, the first run is discarded, and two additional sets of nine trials are administered. Of the 18 test lights presented, the individual now must correctly identify 16 to pass. For flying duty, a third criterion exists. In this case, three runs are made. A passing score is no more than 3 misses out of the 27 test lights presented. (Note: The 15 July 1987 version of AR 40-501 erroneously states 3 misses out of 17 lights, on page 26.)

4. Additional definitions:

Additional definitions and abbreviations to be used in this report are included in Appendix B.

General standards

General vision standards (AR 40-501), shown in Table 1, apply to all categories of personnel: commissioned officer (all branches), warrant officer, and enlisted. These standards are used for appointment, enlistment (and reenlistment 6 months postdischarge), and induction within the Regular Army, Army Reserve, and Army National Guard. General requirements also must be met by applicants to the Uniformed Services University of the Health Sciences. Applicants to the US Military Academy (USMA), the Reserve Officer Training Corps (ROTC) Scholarship Programs,

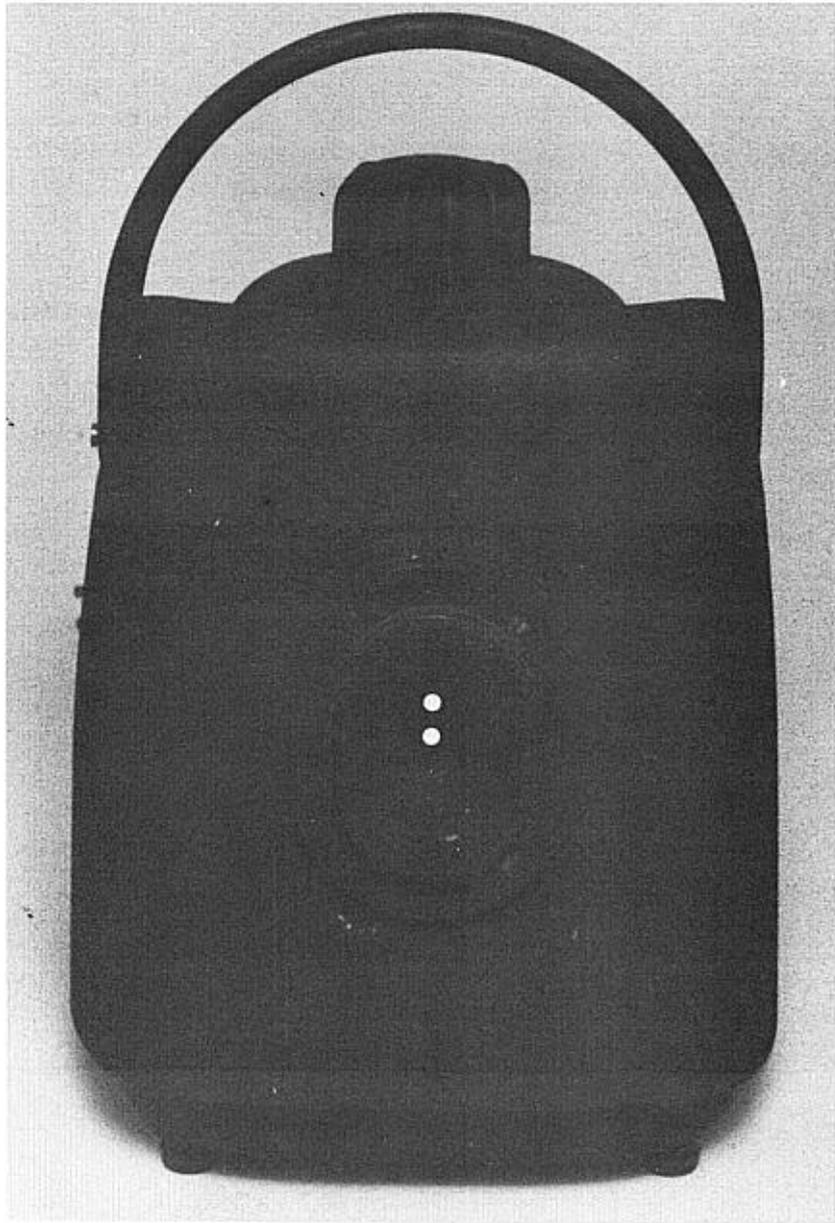


Figure 4. FALANT--Farnsworth Lantern for testing red-green color discrimination.

and Officer Candidate School (OCS) must meet special vision standards described below under "Additional Special Vision Standards."

Ophthalmic causes for service rejection include discomfort from ghost images, prismatic displacement, etc., caused by ordinary spectacles, correction of refractive error by orthokeratology or keratorefractive surgery, and complicated

cases requiring contact lenses for adequate correction of vision such as keratoconus, corneal scars, or irregular astigmatism.

Note there are no color vision requirements included in the general standards. Additional vision requirements for specific military occupational specialties, including those for color, are shown in subsequent sections of this report.

Table 1

General vision standards: Requirements for appointment, enlistment, and induction.

Test	Standard
Distant VA correctable to at least:	20/40 (better eye)-20/70 (worse eye), or 20/30 (better eye)-20/100 (worse eye), or 20/20 (better eye)-20/400 (worse eye)
Near VA correctable to at least:	20/40 in the better eye
Refractive error:	Spherical equivalent of refractive error less than or equal to 8.00 diopters of myopia or hyperopia *
Mobility/motility:	
Diplopia	Does not interfere with visual function
Nystagmus	None or latent (with one eye fixating)
Strabismus	Less than 40 prism diopters with or without correcting lenses
Visual field:	
Temporal	85 degrees or greater
Superior temporal	55 degrees or greater
Superior	45 degrees or greater
Superior nasal	55 degrees or greater
Nasal	60 degrees or greater
Inferior nasal	50 degrees or greater
Inferior	65 degrees or greater
Inferior temporal	85 degrees or greater

* Spherical equivalent of a refractive error = spherical component + 1/2 cylindrical component.

Special commissioned officer vision standards

The general vision standards shown in Table 1 apply to individuals initially appointed or assigned as commissioned officers in all branches. However, additional vision requirements, shown in Table 2, have been established for officers in Armor, Artillery, Corps of Engineers, Infantry, Military Intelligence, Military Police, and Signal Corps (AR 40-501; AR 614-103).

Table 2

Special visual standards for commissioned officers

Test	Standard
Distant VA, correctable to:	20/20 in the better eye and 20/100 in the worse eye
Refractive error:	+8.00 to - 8.00 diopters
Color vision:	Red/green discrimination

Note that the special officer standard for refractive error, as provided in AR 40-501 and shown in Table 2, fails to specify whether the degree of the error is based upon the spherical component or the spherical equivalent of the error. Since the Army's general standards (Table 1) already address refractive error, a special officer standard based on the spherical equivalent of the refractive error is redundant and in no way more restrictive than the general standard (if this is, indeed, the goal of the special officer standards). However, it should be noted that a standard limited to the spherical component could create situations in which the special officer standard is less restrictive than the general. For consistency, a single method of evaluating the level of refractive error is desirable.

Local Requirements. In addition to the special officer standards shown in Table 2, supplementary standards exist for officers with 13E and 35C SSIs. As listed in DA Pam 351-4, "Army Formal Schools Catalog," 13E officers wishing to enroll in the Aerial Observer Course at the US Army Field Artillery School, Fort Sill, Oklahoma, must pass a Class 2 flight physical with its associated vision requirements (see below). Similarly, 35C Intelligence officers planning to attend the Imagery Exploitation Officer Course at the US Army Intelligence Center and School, Fort Huachuca, Arizona, must have normal color vision (tested with a "standard" PIP test), distant visual acuity correctable to 20/20 in both eyes, uncorrected near visual acuity no worse than line "J7" (approximately 20/40-20/50) in the AFVT and correctable

to 20/20, and normal depth perception. Vision prerequisites for both courses were confirmed with the course proponents.

It should be noted that DA Pam 351-4 indicates that an E-1 profile is required for attendance at the Infantry Mortar Platoon Leader's Course leading to the award of a 3Z Additional Skill Identifier (ASI). Information provided by the US Army Infantry School proponent, Fort Benning, Georgia, indicates the correct vision serial profile is E-2. Additionally, although the catalog description for the Pathfinder course lacks information on a requirement for color vision (apart from the red/green discrimination required of infantry personnel), the course proponent suggests individuals must be able to discriminate the colors (red and orange) on either side of the aircraft landing panels used in Pathfinder operations.

Table 3 contains a numerical list of SSIs and associated titles for commissioned officers.

Table 3

Commissioned officer SSIs/titles

SSI	Title
00A	Duties unassigned
00B	General officer
00C	Relieved from duty, sick in hospital or quarters
00D	ROTC officer awaiting entry on active duty/active duty for training
00E	Student officer
11A	Infantry, general
11B	Light infantry
11C	Mechanized infantry
12A	Armor, general
12B	Armor
12C	Cavalry
13A	Field artillery, general
13B	Light missile field artillery
13C	Heavy missile field artillery
13D	Field artillery target acquisition
13E	Cannon field artillery
14A	Air defense artillery, general
14B	Short range air defense artillery (SHORAD)

Table 3 (Continued)

SSI	Title
14C	NIKE-HERCULES missile ADA
14D	HAWK missile ADA
14E	PATRIOT missile ADA
15A	Aviation, general
15B	Aviation, combat
15C	Aviation, combat support
15M	Aviation, combat intelligence
15S	Aviation, air traffic control
15T	Aviation, logistics
18A	Special Forces
18B	Psychological operations
18C	Civil affairs operations
21A	Engineer, general
21C	Topographic engineer
21D	Construction engineer
21J	Combat engineer
25A	Signal, general
25B	Communications-electronic (C-E) automation
25C	Communications-electronic (C-E) operations
25D	Communications-electronic (C-E) engineering
25E	Communications-electronic (C-E) networking
25F	Communications-electronic (C-E) materiel integration
31A	Military police, general
31B	Physical security
31C	Correctional
31D	Criminal investigation
35A	Military intelligence, general
35B	Strategic intelligence
35C	Imagery exploitation
35D	Tactical intelligence
35E	Counterintelligence
35F	Human intelligence
35G	Signals intelligence/electronic warfare

Table 3 (Continued)

SSI	Title
38A	Civil affairs, general
41A	Personnel management staff
41B	Community and family support
42A	Adjutant General, general
42B	Personnel and administrative systems management
42C	Army band
42D	Morale, welfare and recreation
44A	Finance, general
45A	Comptroller
45B	Program/budget
46A	Public affairs, general
46B	Broadcast
47A	Permanent professor
47B	Permanent associate professor
48A	Foreign area, general
48B	Latin America
48C	West Europe
48D	South Asia
48E	Russia/East Europe
48F	China
48G	Middle East/North Africa
48H	Northeast Asia
48I	Southeast Asia
48J	Africa, south of Sahara
49A	Operations research/system analysis (OR/SA)
50A	Force development
51A	Research and development
51B	Test and evaluation
52A	Nuclear weapons, general
52B	Nuclear weapons research

Table 3 (Continued)

SSI	Title
53A	Software engineering officer
53B	Hardware engineering officer
53C	Automation management officer
54A	Operations, plans and training
55A	Judge advocate
55B	Military judge
56A	Command and unit chaplain
56D	Clinical pastoral educator
60A	Operational medicine officer
60B	Nuclear medical officer
60C	Preventive medicine officer
60D	Occupational medicine officer
60E	General medical officer
60F	Pulmonary disease officer
60G	Gastroenterologist
60H	Cardiologist
60J	Obstetrician and gynecologist
60K	Urologist
60L	Dermatologist
60M	Allergist/clinical immunologist
60N	Anesthesiologist
60P	Pediatrician
60Q	Pediatric cardiologist
60R	Child neurologist
60S	Ophthalmologist
60T	Otorhinolaryngologist
60U	Child psychiatrist
60V	Neurologist
60W	Psychiatrist
60Z	Hematologist
61A	Nephrologist
61B	Medical oncologist
61C	Endocrinologist
61D	Rheumatologist
61E	Clinical pharmacologist
61F	Internist
61G	Infectious disease
61H	Family physician
61J	General surgeon
61K	Thoracic surgeon
61L	Plastic surgeon
61M	Orthopedic surgeon

Table 3 (Continued)

SSI	Title
61N	Flight surgeon
61P	Physiatrist
61Q	Therapeutic radiologist
61R	Diagnostic radiologist
61S	Radiologist
61T	Anatomical pathologist
61U	Pathologist
61V	Clinical pathologist
61W	Peripheral vascular surgeon
61Z	Neurosurgeon
62A	Emergency physician
63A	Dental officer
63B	General dental officer
63D	Periodontist
63E	Endodontist
63F	Prosthodontist, fixed
63G	Prosthodontist, removable
63H	Preventive dentistry/dental public health
63K	Pedodontist
63M	Orthodontist
63N	Oral surgeon
63P	Oral pathologist
63R	Executive dental officer
64A	Veterinary services officer
64B	Veterinary staff officer
64C	Veterinary laboratory animal medicine officer
64D	Veterinary pathologist
64E	Veterinary microbiologist
64F	Veterinary comparative medicine officer
65A	Occupational therapist
65B	Physical therapist
65C	Hospital dietician
66A	Nurse administrator
66B	Community health nurse
66C	Psychiatric/mental health nurse

Table 3 (Continued)

SSI	Title
66D	Pediatric nurse
66E	Operating room nurse
66F	Nurse anesthetist
66G	Obstetric and gynecologic nurse
66H	Med-surgical nurse
66J	Clinical nurse
67A	Health care administrator
67B	Field medical assistant
67C	Health services comptroller
67D	Biomedical information systems officer
67E	Patient administration officer
67F	Health services personnel manager
67G	Health services manpower control officer
67H	Health services plans, operations, intelligence and training officer
67J	Aeromedical evacuation officer
67K	Health services materiel officer
67L	Health facilities planning officer
68A	Microbiologist
68B	Nuclear medical science officer
68C	Biochemist
68D	Parasitologist
68E	Immunologist
68F	Clinical laboratory officer/ laboratory manager
68G	Entomologist
68H	Pharmacy officer
68J	Physiologist
68K	Optometry officer
68L	Podiatrist
68M	Audiologist
68N	Environmental science officer
68P	Sanitary engineer
68R	Social work officer
68S	Psychologist
68T	Research psychologist
68U	Psychology associate
74A	Chemical
74B	Chemical operations and training

Table 3 (Continued)

SSI	Title
74C	Chemical munitions and materiel management
91A	Ordnance, general
91B	Tank/automotive materiel management
91C	Missile materiel management
91D	Munitions materiel management
91E	Explosive ordnance disposal
92A	Quartermaster, general
92B	Supply and materiel management
92D	Aerial delivery and materiel
92F	Petroleum
92G	Subsistence
95A	Transportation, general
95B	Traffic management
95C	Marine and terminal operations
95D	Motor/rail transportation
95E	Transportation management
97A	Contracting and industrial management officer
97B	Contracts management officer
97C	Industrial management officer
99A	Combat developments

Special warrant officer vision standards

Individuals appointed or assigned initially as warrant officers are subject to the general vision standards contained in Table 1. Additional warrant officer vision requirements, including those for color vision, are shown in Table 4. AR 611-112 is the regulatory authority governing warrant officer vision requirements unless noted otherwise. Table 5 contains a numerical list of military occupational specialties (MOS) and associated titles for warrant officers.

Table 4

Special vision standards for warrant officers

MOS	Color vision	Additional requirement(s)
011A	-	Good near vision
021A	-	-
031A	-	Good near vision
041A	-	-
051A	Excellent	Good near vision
150A	Normal	Note 1
151A	Normal	Good near vision
152A11	Normal	Note 2
153A11	Normal	Note 2
154A11	Normal	Note 2
155A11	Normal	Note 2
156A	Normal	Note 2
180A	R/G	Note 3
201A	Normal	-
202A	Normal	Good near vision
211A	Normal	Good near vision
212A	Normal	Good near vision
214E, G	Normal	Good near vision
221B	Normal	-
222C	Normal	Good near vision
223B	Normal	Good near vision
224BO, BV	Normal	Good near vision
225B	Normal	Good near vision
252A	Normal	-

Notes:

1. Must meet and maintain medical fitness standards for Class 2 flying duty for Air Traffic Controller (AR 40-501; AR 40-8; see Tables 9-11 of this report). Must also meet standards for FAA Class 2 Medical Certificate.
2. Must initially meet standards for Class 1 flying duty. Class 2 standards for continued flight status (AR 40-501; AR 611-85).
3. Must meet medical standards for Special Forces personnel (AR 40-501; see Tables 12 and 13 of this report).

Table 4 (Continued)

MOS	Color vision	Additional requirement(s)
260A	Normal	Good near vision
271A	Normal	Good near vision
285A	Normal	Good near vision
286A	Normal	Good near vision
287A	Normal	Good near vision
290A	-	-
310A	Normal	Good near vision
401A	-	-
411A	Normal	Good near vision
421A	-	Good near vision
441A	-	-
621A	-	Good near vision
630All	-	Good near vision
711A	-	-
713A	-	-
741A	Normal	Good near vision
761A	-	Good near vision
762A	-	-
811A	Normal	Good near vision
821A	Normal	Good near & far vision
833A	Normal	Good near vision
841A	Normal	Note 4

Note:

4. Near VA correctable to 14/14 inches, distant VA correctable to 20/20 standard Snellen, and 35 percent stereoscopic acuity tested on M1A1 stereoscopic tester (AR 611-112).

Table 4 (Continued)

MOS	Color vision	Additional requirement(s)
880A	Note 5	Note 6
881A	Note 5	Note 6
951A	Note 7	-
961A	-	Good near vision
962A	Normal	Note 8
964A	Normal	Good near vision
971A	Good	Note 9
972A	Good	Note 9
973A	-	Good near vision
982A	-	Good near vision
983A	Normal	Good near vision
984A	Normal	Good near vision
985A	Normal	Good near vision
986A	Normal	Good near vision
988A	Normal	Good near vision

Notes:

5. Must pass either PIP, Farnsworth Lantern test, or Williams Lantern test (AR 56-9; AR 611-101).

6. Uncorrected distant VA not more than 20/200 in each eye, correctable with spectacles to at least 20/20 in better eye and up to 20/40 in worse eye (AR 56-9; AR 611-101).

7. "Normal color vision. If color blind, furnish a medical certificate from US Medical authority certifying that applicant can distinguish between red, green, and amber colors" (AR 195-3).

8. Must have near VA correctable to approximately 14/14 inches, distant VA correctable to 20/20, normal stereopsis, with or without correction.

9. Must have good near, far, day, night vision.

Table 5

Warrant officer MOSs/titles

MOS	Title
001A	Unqualified in authorized warrant officer MOS
002A	Patient
003A	Student
004A	Duty unassigned or in transit
011A	Physician assistant
021A	Club manager
031A	Bandmaster
041A	Food service technician
051A	Veterinary services technician
150A	Air traffic control technician
151A	Aviation maintenance technician
152B	OH-58A/C scout pilot
152C	OH-6 scout pilot
152D	OH-58D scout pilot
152F	AH-64 pilot
152G	AH-1 pilot
153A	Rotary-wing aviator
153B	UH-1 pilot
153C	OH-58A/C pilot
153D	UH-60 pilot
154A	CH-54 pilot
154B	CH47A/B/C pilot
154C	CH-47D pilot
155A	Fixed-wing aviator
155D	U-21 pilot
155E	C-12 pilot
156A	OV-1/RV-1 pilot
180A	Special operations technician
201A	Meteorology technician
202A	Medical equipment repair technician

Table 5 (Continued)

MOS	Title
211A	Target acquisition radar technician
212A	Remotely piloted vehicle technician
214E	PERSHING system technician
214G	LANCE system technician
221B	NIKE assembly technician
222C	PATRIOT system technician
223B	HAWK system technician
224BO	CHAPARRAL-VULCAN systems technician
224BV	CHAPARRAL-VULCAN intermediate maintenance technician
225B	Air defense artillery command and control maintenance technician
252A	Calibration and repair technician
260A	Nuclear weapons technician
271A	Land combat missile systems repair technician
285A	Electronic warfare/intercept equipment repair technician
286A	Communications-electronics equipment repair technician
287A	Data processing systems repair technician
290A	Telecommunications technician
310A	Utilities operations and maintenance technician
401A	Airdrop equipment technician
411A	Ammunition technician
421A	Armament repair technician
441A	Repair shop technician
621A	Engineer equipment repair technician
630A	Wheeled vehicle maintenance technician
630B	Light systems maintenance technician

Table 5 (Continued)

MOS	Title
630C	Field artillery vehicle maintenance technician
630D	Armor/cavalry maintenance technician
630E	Support/staff maintenance technician
711A	Military personnel technician
713A	Legal administrator
741A	Data processing technician
761A	General supply technician
762A	Support supply technician
811A	Photomapping technician
821A	Survey technician
833A	Reproduction technician
841A	Terrain analysis technician
880A	Marine deck officer
881A	Marine engineer officer
951A	Criminal Investigation Division special agent
961A	Attache technician
962A	Imagery interpretation technician
964A	Order of battle technician
971A	Counterintelligence technician
972A	Area intelligence technician
973A	Interrogation technician
982A	Traffic analysis technician
983A	Emanations analysis technician
984A	Morse intercept technician
985A	Non-Morse intercept technician
986A	Emitter location/identification technician
988A	Voice intercept technician

Special enlisted personnel vision standards

The general vision standards (Table 1) apply to individuals selected initially for enlistment or induction. Table 6 contains the special vision requirements for specific enlisted military occupational specialties. AR 611-101 is the primary source for these special requirements. Information on visual standards is contained primarily in Chapter 2, "Career Management Fields and MOS Specifications," although additional requirements are found in Appendix B - Table B-1, "MOS Physical Performance Tasks - Physical Requirements for MOS by CMF." In addition to the MOS-specific vision requirements shown in Chapter 2 and Table B-1, the regulation lists additional physical qualifications under a section devoted to descriptions of Career Management Fields (CMFs). Requirements for "night vision," "depth perception," and "good eye-hand coordination" are the more frequent visual skills listed among the many physical qualifications for a number of CMFs. Unfortunately, the regulation fails to specify required levels for each, and general standards for night vision, depth perception, and general visuomotor coordination currently are nonexistent.

DA Pam 351-4 is an additional, although nonregulatory, source of information on visual requirements for several enlisted MOS-producing courses. Unfortunately, in several places the vision prerequisites described in the current edition of the Schools Catalog differ from those described in AR 611-101. For example, DA Pam 351-4 lists the color vision requirements for MOSs 13B as "good," 15D and 15E as "normal," and 13F and 17C as "red/green" discrimination. AR 611-101 lists the color vision standards as follows: 13B, 15D, and 15E - red/green discrimination, 13F and 17C - normal. Although we could cite additional examples of contradictory information within the two documents, the personnel proponents in each case indicated that AR 611-101 is the applicable regulatory authority for vision standards, as well as for all others, for enlisted personnel.

However, even AR 611-101 may contain some confusing information. For example, according to the personnel proponent, MOSs 95B and 95C serve as the feeders to 95D. Since color vision shows no improvement over time, it seems inconsistent that the feeder MOSs should have a less stringent color vision requirement (red/green discrimination) than the recipient ("normal"). Additionally, two MOSs within the 81-series require "a maximum of 175 seconds of arc visual stereopsis activity (sic)." As noted in the general discussion of stereopsis and depth perception, using the typical test apparatus at the standardized test distance, a stereoscopic acuity of 175 seconds of arc (approximately 35 percent stereopsis) translates into a rather lenient requirement and one that may be too gross to even measure with contemporary screening equipment.

Finally, we should point out that some omissions in the requirements information pertaining to vision may exist within AR 611-101. For example, the personnel proponent for MOS 31C claims that the requirement for "normal" color vision has been omitted, while a similar comment was made regarding the requirement for "good near vision" from the personnel proponent for MOS 33V. Other cases could be cited as well. The obvious conclusion from these examples, is that the primary user-community could benefit from a careful review of the physical and medical standards contained in AR's 611-101 and 40-501 and in DA Pam 351-4.

Local requirements. One example of local policy with a unique, additional, set of visual standards as part of the criteria for personnel recruitment and selection was found for CMF 11 (Infantry). According to Circular Number 350-23 (dated 1 January 1985; expires 31 December 1987) issued by the US Army Infantry Training Center, Fort Benning, Georgia, soldiers within CMF 11 require correctable distant acuity of "20/20 in the master (shooting) eye and 20/100 in the other eye" and soldiers selected for 11H (TOW gunnery) training "should not wear glasses." AR 611-201 shows the infantry vision requirement for distant acuity to be correctable to 20/20 in the better eye and 20/100 in the worse eye. In this regulation, there is no requirement for the master (shooting) eye to be correctable to 20/20.

Table 7 contains a numerical list and titles of Enlisted MOSs.

Table 6

Special vision requirements for enlisted personnel			
MOS	"E" profile	Color vision	Additional requirement(s)
00	B	1	Note 1
	E,R	2	-
	J	3	-
01	H	2	-
02	All	2	-
03	C	2	-
05	D	2	Normal
	H,K	2	R/G
11	B,C,H,M	2	R/G
	Z	2	R/G
12	B,C,E,F	2	Normal
	Z	2	-
13	B,C,E,M,N,Z	2	R/G
	F	1	Normal
	R,T	2	Normal
15	E,D,J	2	R/G
16	D-F,H,J,P,R,Z	2	R/G
	G	2	Normal
	S	1	Normal
	T	2	Normal
17	B,C	2	Normal
18	All	2	R/G

Notes:

1. Must meet marine diving standards for Engineer divers (AR 40-501; see Table 13 of this report).
2. VA correctable to 20/20 in the better eye and 20/100 in the poorer eye (modified E-2 profile; AR 611-101).
3. VA correctable to 20/20 in each eye, distant and near.
4. Normal depth perception.
5. VA correctable to 20/20 without multifocals.
6. Must meet medical standards for Special Forces (modified E-2, AR 40-501; see Table 12 of this report).

Table 6 (Continued)

MOS	"E" profile	Color vision	Additional requirement(s)
19 D, E, K	2	Normal	Note 2
Z	2	R/G	-
21 G, L	2	Normal	-
24 C-R, T, U, V	2	Normal	-
S	2	Normal	Notes 3 & 4
25 L	2	Normal	-
Z	3	-	Note 4
26 H, T	2	Normal	-
27 All	2	Normal	-
29 All	2	Normal	-
31 C	2	-	-
G-Z	2	Normal	-
32 D	2	Normal	-
33 M, P, Q, R, T, Z	2	Normal	Good near vision
V	2	Normal	-
35 All	2	Normal	-
36 L, M	2	Normal	-
39 All	2	Normal	-
42 C, E	2	-	-
D	2	Normal	-
43 E	2	Normal	-
M	2	-	-

Notes:

2. VA correctable to 20/20 in the better eye and 20/100 in the poorer eye (modified E-2 profile; AR 611-101).
3. VA correctable to 20/20 in each eye, distant and near.
4. Normal depth perception.

Table 6 (Continued)

MOS	"E" profile	Color vision	Additional requirement(s)
44 B, E	2	Normal	Note 7
45 B	2	-	-
D, E, G, K, L, N, T, Z	2	Normal	-
46 N	2	Normal	-
51 H, Z	2	-	-
B, G, K, H, M, R, T	2	Normal	-
52 All	2	Normal	-
54 B	2	Normal	-
55 All	2	Normal	-
57 E, F	2	-	-
62 B	2	Normal	-
G	2	Normal	Note 4
E, F, H, J, N	2	R/G	Note 4
63 B, D, E, J, N, S, T, Y	2	Normal	-
G, H, W	3	Normal	-
Z	3	-	-
66 All	1	Normal	-
67 G, T, U	Note 8	Normal	-
H	2	Normal	-
N, R, S, V, X, Y	1	Normal	-
Z	2	-	-
68 B, D, F-K, M	2	Normal	-
71 C, D, E, G, L, M	2	-	-
Q, R	2	Normal	Note 4

Notes:

4. Normal depth perception.
7. Distant and near VA 20/30 in each eye, with or without corrective lenses; up to 1 error on Titmus Stereo Circles at 16" or no errors on 8 positions of Verhoeff Stereopter at 16-inch viewing distance.
8. PULHES profile "E1" for enlisted grades E-2 to E-6; profile "E2" for grade E-7.

Table 6 (Continued)

MOS	"E" profile	Color vision	Additional requirement(s)
72	E, G	-	-
73	C, D, Z	-	-
74	D, F, Z	-	-
75	All	-	-
76	C, Y	Normal	-
	J, X	Normal	-
	P, V	-	-
	Z	-	-
77	F, L, W	Normal	-
79	D	-	-
81	B, Z	-	-
	C, Q	Normal	Note 9
	E	Normal	-
82	B, C, D	Normal	-
83	E, F	Normal	-
84	B, C, F, T	Normal	Note 4
	Z	-	-
88	H	R/G	-
	K, L	Note 10	Note 11
	M	R/G	-
	N, Z	-	-
	P-T	-	-
	U, V, W	Normal	-
	X	Normal	-
	Y	-	Note 11
91	A-E, N, Q, S-V, X, Y	Normal	-
	F-L, P, W	-	-
	R	Normal	Good near vision

Notes:

4. Normal depth perception.
9. Maximum of 175 seconds of arc visual stereopsis acuity.
10. Must pass PIP, Farnsworth Lantern test, or Williams Lantern test.
11. Uncorrected VA 20/200 in each eye, correctable to 20/20 in the better eye and 20/40 in the worse eye.

Table 6 (Continued)

MOS	"E" profile	Color vision	Additional requirement(s)
92 B, E	2	Normal	-
93 B	1	Normal	Note 12
D-F	2	Normal	-
H, J	1	Normal	Note 12
P	2	-	-
94 B, F	3	Normal	-
95 B, C	2	R/G	-
D	2	Normal	-
96 B, F, R	2	Normal	-
D	1	Normal	Notes 3 & 13
H	1	Normal	Notes 3 & 14
Z	2	-	-
97 B, E	2	Normal	-
C	1	Normal	-
G	2	R/G	-
Z	2	-	-
98 C, G, Z	2	-	-
J	2	Normal	-

Notes:

3. VA correctable to 20/20 in each eye, distant and near.
12. Must meet and maintain Class 2 flight standards.
13. Normal stereopsis with and without Rx.
14. Meet and maintain the requirements for Class 3 flight physical.

Table 7

Enlisted personnel MOSs/titles

MOS	Title
00B	Diver
00D	Special duty assignment
00E	Recruiter
00J	Club manager
00R	Recruiter/retention NCO
00U	Equal Opportunity NCO
01H	Biological sciences assistant
02B	Trumpet or coronet player
02C	Baritone or euphonium player
02D	French horn player
02E	Trombone player
02F	Tuba player
02G	Flute or piccolo player
02H	Oboe player
02J	Clarinet player
02K	Bassoon player
02L	Saxophone player
02M	Percussion player
02N	Piano player
02P	Brass group leader
02Q	Woodwind group leader
02R	Percussion group leader
02S	Special bandsperson
02T	Guitar player
02U	Electric bass player
02Z	Band senior sergeant
03C	Physical activities specialist
05D	Electronic warfare/signal intelligence emitter identifier/locator
05H	Electronic warfare/signal intelligence Morse interceptor
05K	Electronic warfare/signal intelligence non-Morse interceptor
09D	College trainee
09S	Commissioned officer candidate
09W	Warrant officer candidate

Table 7 (Continued)

MOS	Title
11B	Infantryman
11C	Indirect fire infantryman
11H	Heavy antiarmor weapon infantryman
11M	Fighting vehicle infantryman
11Z	Infantry senior sergeant
12B	Combat engineer
12C	Bridge crewmember
12E	Atomic demolition munition specialist
12F	Engineer tracked vehicle crewman
12Z	Combat engineer senior sergeant
13B	Cannon crewman
13C	Tactical fire operations specialist
13E	Cannon fire direction specialist
13F	Fire support specialist
13M	MLRS crewmember
13N	LANCE crewmember
13R	Field artillery firefinder radar operator
13T	Remotely piloted vehicle crewmember
13Z	Field artillery senior sergeant
15E	PERSHING missile crewmember
15J	MLRS/LANCE operations/fire direction specialist
16D	HAWK missile crewmember
16E	HAWK fire control crewmember
16F	Light air defense artillery crewmember
16G	ROLAND system crewmember
16H	Air defense artillery operations and intelligence assistant
16J	Defense acquisition radar operator
16P	CHAPARRAL crewmember
16R	VULCAN crewmember
16S	MANPADS crewmember
16T	PATRIOT missile crewmember
16Z	Air defense artillery senior sergeant
17B	Field artillery radar crewmember
17C	Field artillery target acquisition specialist

Table 7 (Continued)

MOS	Title
18B	Special operations weapons sergeant
18C	Special operations engineer sergeant
18D	Special operations medical sergeant
18E	Special operations communications sergeant
18F	Special operations intelligence sergeant
18Z	Special operations senior sergeant
19D	Cavalry scout
19E	M48-M60 armor crewman
19K	M1 armor crewman
19Z	Armor senior sergeant
21G	PERSHING electronics materiel specialist
21L	PERSHING electronics repairer
24C	HAWK firing section mechanic
24E	HAWK fire control mechanic
24G	HAWK coordination central mechanic
24H	HAWK fire control repairer
24J	HAWK pulse radar repairer
24K	HAWK continuous-wave radar repairer
24L	HAWK launcher/mechanical systems repairer
24M	VULCAN system mechanic
24N	CHAPARRAL system mechanic
24R	HAWK master mechanic
24S	ROLAND mechanic
24T	PATRIOT operator/system mechanic
24U	NIKE-HERCULES custodial mechanic
24V	HAWK maintenance chief
25L	AN/TSQ-73 air defense artillery command and control system operator/repairer
25Z	Audio-visual chief
26H	Air defense radar repairer
26T	Radio/TV system specialist
27B	Land combat support system (LCSS) test specialist
27C	ROLAND repairer
27D	ROLAND field maintenance test set repairer
27E	TOW/DRAGON repairer

Table 7 (Continued)

MOS	Title
27F	VULCAN repairer
27G	CHAPARRAL/REDEYE repairer
27L	LANCE system repairer
27M	Multiple launch rocket system (MLRS) repairer
27N	Forward area alerting radar repairer
27Z	Land combat/air defense system maintenance chief
29E	Communications-electronics radio repairer
29F	Fixed communications security equipment repairer
29G	Digital communications equipment repairer
29H	Automatic digital message switch equipment (ADMSE) repairer
29J	Teletypewriter equipment repairer
29M	Tactical satellite/microwave repairer
29N	Telephone central office repairer
29P	Communications security maintenance chief
29S	Field communications security equipment repairer
29T	Satellite communication/microwave communications chief
29U	Digital equipment maintenance chief
29V	Strategic microwave system repairer
29W	Communications maintenance support chief
29X	Communications equipment maintenance chief
29Y	Satellite communications system repairer
31C	Single channel radio operator
31G	Tactical communications chief
31K	Combat signaler
31L	Wire system installer
31M	Multichannel communications system operator
31N	Tactical circuit control
31Q	Tactical satellite/microwave system operator

Table 7 (Continued)

MOS	Title
31V	Unit level communications maintainer
31X	Communications systems/circuit control supervisor
31Y	Communications system supervisor
31Z	Communications-operations chief
32D	Communications system circuit controller
33M	Electronic warfare/intercept strategic system analyst and command and control subsystems repairer
33P	Electronic warfare/intercept receiving subsystems repairer
33Q	Electronic warfare/intercept strategic processing/storage subsystems repairer
33R	Electronic warfare/intercept aviation systems repairer
33T	Electronic warfare/intercept tactical systems repairer
33V	Electronic warfare/intercept aerial sensor repairer
33Z	Electronic warfare/intercept systems maintenance supervisor
35G	Biomedical equipment specialist, basic
35H	Calibration specialist
35K	Avionic mechanic
35L	Avionic communications equipment repairer
35M	Avionic navigation and flight control equipment repairer
35P	Avionic equipment maintenance supervisor
35R	Avionic special equipment repairer
35U	Biomedical equipment specialist, advanced
36L	Transportable automatic switching systems operator/maintainer
36M	Switching systems operator
39B	Automatic test equipment operator/maintainer
39C	Target acquisition/surveillance radar repairer
39D	Decentralized automated service support system computer system repairer

Table 7 (Continued)

MOS	Title
39E	Special electronic devices repairer
39K	IBM automatic data processing system repairer
39L	Field artillery digital system repairer
39T	Tactical computer system repairer
39V	Computer systems maintenance chief
39W	Radar/special electronic devices maintenance chief
39X	Electronics equipment maintenance chief
39Y	Field artillery tactical fire direction systems repairer
41B	Topographic instrument repair specialist
41C	Fire control instrument repairer
41E	Audio/visual equipment repairer
41J	Office machine repairer
42C	Orthotic specialist
42D	Dental laboratory specialist
42E	Optical laboratory specialist
43E	Parachute rigger
43M	Fabric repair specialist
44B	Metal worker
44E	Machinist
45B	Small arms repairer
45D	Self-propelled field artillery turret mechanic
45E	M1 ABRAMS tank turret mechanic
45G	Fire control systems repairer
45K	Tank turret repairer
45L	Artillery repairer
45N	M60A1/A3 turret mechanic
45T	BRADLEY Fighting Vehicle system turret mechanic
45Z	Armament/fire control maintenance supervisor
46N	PERSHING electrical-mechanical repairer

Table 7 (Continued)

MOS	Title
51B	Carpentry and masonry specialist
51G	Materials quality specialist
51H	Construction engineering supervisor
51K	Plumber
51M	Firefighter
51R	Interior electrician
51T	Technical engineering supervisor
51Z	General engineering supervisor
52C	Utilities equipment repairer
52D	Power-generation equipment repairer
52E	Prime power production specialist
52F	Turbine engine driven generator repairer
52G	Transmission and distribution specialist
52X	Special purpose equipment repairer
53B	Industrial gas production specialist
54B	Chemical operations specialist
55B	Ammunition specialist
55D	Explosive ordnance disposal specialist
55G	Nuclear weapons specialist
55R	Ammunition stock control and accounting specialist
55X	Ammunition inspector
55Z	Ammunition supervisor
57E	Laundry and bath specialist
57F	Graves registration specialist
62B	Construction equipment repairer
62E	Heavy construction equipment operator
62F	Crane operator
62G	Quarrying specialist
62H	Concrete and asphalt equipment operator
62J	General construction equipment operator
62N	Construction equipment supervisor
63B	Light-wheel vehicle mechanic
63D	Self-propelled field artillery system mechanic
63E	M1 ABRAMS tank system mechanic
63G	Fuel and electrical systems repairer
63H	Track vehicle repairer
63J	Quartermaster and chemical equipment repairer

Table 7 (Continued)

MOS	Title
63N	M60A1/A3 tank system mechanic
63S	Heavy-wheel vehicle mechanic
63T	BRADLEY Fighting Vehicle system mechanic
63W	Wheel vehicle repairer
63Y	Track vehicle mechanic
63Z	Mechanical maintenance supervisor
66G	Utility airplane technical inspector
66H	Observation airplane technical inspector
66J	Aircraft armament technical inspector
66N	Utility helicopter technical inspector
66R	AH-64 attack helicopter technical inspector
66S	Scout helicopter technical inspector
66T	Tactical transportation helicopter technical inspector
66U	Medium helicopter technical inspector
66V	Observation/scout helicopter technical inspector
66X	Heavy lift helicopter technical inspector
66Y	AH-1 attack helicopter technical inspector
67G	Utility airplane repairer
67H	Observation airplane repairer
67N	Utility helicopter repairer
67R	AH-64 attack helicopter repairer
67S	Scout helicopter repairer
67T	Tactical transportation helicopter repairer
67U	Medium helicopter repairer
67V	Observation/scout helicopter repairer
67X	Heavy lift helicopter repairer
67Y	AH-1 attack helicopter repairer
67Z	Aircraft maintenance senior sergeant
68B	Aircraft powerplant repairer
68D	Aircraft powertrain repairer
68F	Aircraft electrician
68G	Aircraft structural repairer
68H	Aircraft pneudraulics repairer
68J	Aircraft fire control repairer
68K	Aircraft components repair supervisor
68M	Aircraft weapon systems repairer

Table 7 (Continued)

MOS	Title
71C	Executive administrative assistant
71D	Legal specialist
71E	Court reporter
71G	Patient administration specialist
71L	Administrative specialist
71M	Chapel activities specialist
71Q	Journalist
71R	Broadcast journalist
72E	Tactical telecommunications center operator
72G	Automatic data telecommunications center operator
72H	Central office operation operator
73C	Finance specialist
73D	Accounting specialist
73Z	Finance senior sergeant
74D	Computer/machine operator
74F	Programmer analyst
74Z	Data processing NCO
75B	Personnel administration specialist
75C	Personnel management specialist
75D	Personnel records specialist
75E	Personnel actions specialist
75F	Personnel information system management specialist
75Z	Personnel sergeant
76C	Equipment records and parts specialist
76J	Medical supply specialist
76P	Materiel control and accounting specialist
76V	Materiel storage and handling specialist
76X	Subsistence supply specialist
76Y	Unit supply specialist
76Z	Senior supply sergeant
77F	Petroleum supply specialist
77L	Petroleum laboratory specialist
77W	Water treatment specialist

Table 7 (Continued)

MOS	Title
79D	Reenlistment NCO
81B	Technical drafting specialist
81C	Cartographer
81E	Illustrator
81Q	Terrain analyst
81Z	Topographical engineering supervisor
82B	Construction surveyor
82C	Field artillery surveyor
82D	Topographic surveyor
83E	Photo and layout specialist
83F	Printing and binding specialist
84B	Still photographic specialist
84C	Motion picture specialist
84F	Audio/television specialist
84T	TV/radio broadcast operations chief
84Z	Public affairs chief
88H	Cargo specialist
88K	Watercraft operator
88L	Watercraft engineer
88M	Motor transport operator
88N	Traffic management coordinator
88P	Locomotive repairer
88Q	Railway car repairer
88R	Airbrake repairer
88S	Locomotive electrician
88T	Railway section repairer
88U	Locomotive operator
88V	Train crewmember
88W	Railway movement coordinator
88X	Railway senior sergeant
88Y	Marine senior sergeant
88Z	Transportation senior sergeant
91A	Medical specialist
91B	Medical NCO
91C	Practical nurse
91D	Operating room specialist
91E	Dental specialist
91F	Psychiatric specialist

Table 7 (Continued)

MOS	Title
91G	Behavioral science specialist
91H	Orthopedic specialist
91J	Physical therapy specialist
91L	Occupational therapy specialist
91N	Cardiac specialist
91P	X-ray specialist
91Q	Pharmacy specialist
91R	Veterinary food inspection specialist
91S	Preventive medicine specialist
91T	Animal care specialist
91U	Ear, nose, and throat specialist
91V	Respiratory specialist
91W	Nuclear medicine specialist
91X	Health physics specialist
91Y	Eye specialist
92B	Medical laboratory specialist
92E	Cytology specialist
93B	Aeroscout observer
93D	Air traffic control systems, subsystems and equipment repairer
93F	Field artillery meteorological crewmember
93H	Air traffic control tower operator
93J	Air traffic control radar controller
93P	Flight operations coordinator
94B	Food service specialist
94F	Hospital food service specialist
95B	Military police
95C	Corrections NCO
95D	CID special agent
96B	Intelligence analyst
96D	Imagery analyst
96F	Psychological operations specialist
96H	Aerial intelligence specialist
96R	Ground surveillance systems operator
96Z	Intelligence senior sergeant

Table 7 (Continued)

MOS	Title
97B	Counterintelligence agent
97E	Interrogator
97G	Counter-signals intelligence specialist
97Z	Counter intelligence/human intelligence senior sergeant
98C	Electronic warfare/signal intelligence analyst
98G	Electronic warfare/signal intelligence voice interceptor
98J	Electronic warfare/signal intelligence noncommunications interceptor
98Z	Electronic warfare/signal intelligence chief

Additional special vision standards

Special visual requirements for occupations/specialties can apply to officer, warrant officer, and enlisted personnel. In the following section, use of a dash (-) in the tables indicates no additional special requirement; the minimum standards are the general standards plus any additional or special standards shown in the preceding sections.

1. Flying duty (flight status):

a. **Flight physical classes.** AR 40-501 designates five classes of medical fitness standards (1, 1A, 2, 2A, and 3) to cover the various occupations or specialties involving flying duty. (For administrative purposes only, the US Army Aeromedical Center, Fort Rucker, Alabama, designates a sixth class, 2F, for selected medical personnel.) Classes of medical examination required for aviation related occupations are provided in Table 8. The information contained in this table has been extracted from ARs 40-501, 611-110, and 611-85.

Flying duty standards common to all classes are presented in Tables 9 and 9A. Requirements which differ among the classes are contained in Table 10. Special requirements (exceptions to minimum standards) for senior career officers entering initial flight training are shown in Table 11.

Table 8

Classes of medical standards for flying duty

Class	Occupation/specialty
1	Warrant officer aviator -- initial (individuals under consideration or selected for training)
1A	Commissioned officer aviator -- initial (individuals under consideration or selected for training) Individuals under consideration for Army ROTC Flight Training Program or USMA Specialty Training Program (Aviation)
2	Qualified Army aviators (all physical examinations subsequent to initial) Student aviators while in flight training Individuals successfully completing ROTC or USMA flight training course Applicants for HQDA programs for appointment and rating by reason of civilian-acquired aeronautical skills DA pilots employed by firms under contract to the Army Army aviators being considered for return to aviation service Certain senior career officers (Note 1)
2A	Air traffic controllers
2F	Flight surgeons and student flight surgeons Medical officers, medical students, physician assistants, and all others under consideration for selection or training in the Army's flight surgeon's course; Army applicants and enrollees in Navy and Air Force aviation medicine primary courses
3	Nonrated frequent fliers with valid orders to fly, including air ambulance attendants, aeromedical physician assistants (Note 2), crew chiefs, observers, gunners, and others (noncrew members)

Notes:

1. Selected senior career officers may be medically qualified for initial flight training by meeting the Class 2 standards with exceptions for refractive error noted in Table 11.
2. Class 2 standards apply for selection and training only.

Table 9

Common flying duty visual standards

Test	Minimum standard
Distant VA - correctable to:	20/20 each eye (Note 1)
Near VA - correctable to:	20/20 each eye (Note 1)
Ocular motility:	
Esophoria	Less than or equal to 8 PD
Exophoria	Less than or equal to 8 PD
Heterotropia	None allowed
NPC	Less than or equal to 70 mm
Power of accommodation:	Age dependent (see Table 9A)
Color vision:	Normal (Note 2)
Stereopsis:	Normal
Visual field:	No demonstrable scotomas or 15 degree field contractions
Night blindness:	No history
Red lens:	No diplopia or suppression

Notes:

1. According to AR 40-8, "Temporary Flying Restrictions Due to Exogenous Factors," aircrew members requiring corrective lenses in order to achieve 20/20 vision are restricted from flying duties unless wearing corrective spectacle lenses which provide 20/20, or better, near and far vision bilaterally. Aircrew members are not permitted to wear contact lenses at any time.

2. In lieu of passing a PIP test, indicating normal color vision, passing the FALANT test with no errors on 9 test lights, up to 2 errors in reading 18, or up to 3 errors in reading 27 test lights is acceptable. Note: The 15 July 1987 version of AR 40-501 erroneously states 3 errors in reading 17 test lights, p. 26).

Table 9A

Minimum values of visual accommodation
for flying duty

Age	Diopters	Age	Diopters	Age	Diopters
17	8.8	27	6.5	37	3.7
18	8.6	28	6.2	38	3.4
19	8.4	29	6.0	39	3.1
20	8.1	30	5.7	40	2.8
21	7.9	31	5.4	41	2.4
22	7.7	32	5.1	42	2.0
23	7.5	33	4.9	43	1.5
24	7.2	34	4.6	44	1.0
25	6.9	35	4.3	45	0.6
26	6.7	36	4.0		

Table 10

Visual standards differentiating specific flight classes

Test	Class				
	1	1A	2/2A	2F	3
Unaided distant VA (each eye)	20/20	20/50	20/100	20/200	20/200
Unaided near VA (each eye):					
Under age 35	20/20	20/20	20/100	20/200	20/100
Age 35 and over	20/20	20/50	20/100	20/200	20/100
Refractive error (D):					
Astigmatism	0.75	0.75	*	*	*
Hyperopia					
Under age 35	1.75	1.75	*	*	*
Age 35 and over	1.75	2.00	*	*	*
Myopia	0.25	0.75	*	*	*
Ocular motility (PD):					
Hyperphoria	1.00	1.00	1.50	1.50	1.50

* Refractive error of such magnitude that the individual cannot be fit with aviation spectacles (AR 40-501). The correction limit imposed by AR 40-63, Ophthalmic Services, is 5.50 diopters of myopia or hyperopia in any meridian.

Table 11

Exceptions to flying duty visual standards
for senior career officers

Test	Minimum standard
Refractive error (D):	
Astigmatism	Less than or equal to 1.00
Hyperopia	Less than or equal to 1.75
Myopia	Less than or equal to 1.25

2. Airborne, Ranger, and Special Forces training and duty:

Table 12 contains special requirements listed in AR 40-501 for personnel applying for Airborne, Ranger, and Special Forces training and duty.

Table 12

Special vision requirements for Airborne, Ranger,
and Special Forces training and duty

Test	Airborne	Ranger	Special Forces
Color vision	Note 1	-	Note 1
Distant VA	Note 2	Note 2	Note 2
Refractive error	Note 3	Note 3	Note 3

Notes:

1. Identify red and/or green as projected by Ophthalmological Projector or the Stereoscope, Vision Testing.
2. Correctable to 20/20 in the better eye and 20/100 in the worse eye.
3. Within 8 diopters of plus or minus refractive error, with spectacle lenses.

3. Free fall parachuting and marine diving:

A. Initial selection

Table 13 presents special visual requirements, as per AR 40-501, for initial selection for free fall parachute and marine diving training. Note that separate standards exist for combat (Special Forces and Rangers) and engineer divers (MOS 00B).

Table 13

Special Visual Requirements for Free Fall Parachute and Marine Diving Training

	Free fall	Marine diving	
	parachuting	Combat (Special Forces and Rangers)	Engineer (MOS 00B)
Color vision	R/G	R/G (Note 1)	Normal (Notes 2 & 3)
Distant VA	Note 4	Note 4	Note 5
Near VA	-	-	Note 6

Notes:

1. R/G discrimination as projected by the Ophthalmological Projector or the Stereoscope, Vision Testing.

2. In lieu of passing a PIP test, indicating normal color vision, pass the FALANT.

3. Waivers may be granted by the reviewing authority if the examinee can correctly identify the red and green colors used in diving operations. Such testing will include sufficient repetitions to insure against examinee passing by chance (AR 40-501).

4. Correctable to 20/20 in the better eye and 20/100 in the worse eye.

5. Uncorrected not worse than 20/200, correctable to 20/20 in each eye.

6. Uncorrected not worse than 20/50, correctable to 20/20. Does not specify whether acuity is for each eye or is binocular visual acuity, i.e., both eyes.

B. Retention

AR 40-501 lists specific visual standards for retaining engineer (MOS 00B) divers. These individuals must have corrected near and far VA of at least 20/30 in one eye for retention purposes.

4. Selection and training of officer volunteers for explosive ordnance disposal (EOD) duty:

As per AR 611-105, "Selection, Processing, and Training of Officer Volunteers for Explosive Ordnance Duty," minimum standards for applicants are an E-2 profile on the PULHES serial and normal color vision. Applicants approved for EOD training with uncorrected binocular acuity of less than 20/40 or who need bifocal correction must have corrective lenses for their protective masks before reporting for initial instruction.

5. Military driver's license:

Visual standards required to obtain a military driver's license are contained in DA Pam 611-125, "Testing Procedures for Licensing Drivers of Army Motor Vehicles." The test apparatus is described in FM 55-30, "Army Motor Transport Units and Operations." Currently, four visual skills are measured -- visual acuity, visual field, depth perception, and color vision. However, minimum standards are limited to visual acuity and visual field. The standards are the same for drivers of either tactical or commercial-type Army vehicles.

a. Visual acuity. The minimum standard for monocular visual acuity is uncorrected distant acuity of any degree which is correctable to not less than 20/40 in the better eye (for military personnel, a numerical designator of "1", "2", or "3" under the "E" factor of the physical profile serial). Visual acuity with both eyes open must also be corrected with ordinary spectacles to at least 20/40. Drivers who cannot attain 20/40 binocular acuity without refractive correction are required to wear corrective lenses while operating an Army vehicle.

b. Visual field. A lateral range of 75 degrees on each side of the focus line is acceptable. Examinees not meeting this standard are referred to medical authorities to determine if their lateral vision is sufficient for safe driving.

c. Depth perception and color vision. Although both depth perception and color vision are tested, minimum standards exist for neither. Results of the depth perception test are used in counseling and for driver training. Individuals demonstrating "color blindness" are provided information "on traffic light sequence, observation of other traffic, etc., which will enable (them) to drive safely." (DA Pam 611-125)

6. Army Drill Sergeant Program:

An E-2 (nonwaiverable) in the PULHES serial is the minimum standard required of applicants for the Army's Drill Sergeant Program and for the award of the "X" skill qualification identifier (AR 614-200, "Selection of Enlisted Soldiers for Training and Assignment").

7. Nuclear power plant personnel:

Nuclear power plant personnel require red/green discrimination ability (AR 40-501).

8. U.S. Military Academy (USMA) and Reserve Officer Training Corps (ROTC) Scholarship Programs:

Special visual requirements for entrance into USMA or an ROTC scholarship program, as per AR 40-501, are shown in Table 14.

Table 14

Special visual requirements for entrance into the US Military Academy (USMA) and the Army Reserve Officer Training Corps (ROTC) Scholarship Programs

Color Vision	R/G discrimination (Note 1)
Distant VA	Corrected to 20/20 each eye
Refractive error (D):	
Anisometropia	3.50
Astigmatism	3.00
Hyperopia	5.50
Myopia	5.50

Note:

1. Must be able to distinguish and identify without confusion the color of an object, substance, material, or light that is uniformly colored a vivid red or (sic) a vivid green.

9. Officer Candidate School:

Applicants to Officer Candidate School must meet the special vision standards required of officers assigned to specific combat arms and combat support branches. These requirements, discussed previously, are shown in Table 2.

Retention standards

Retention standards, shown in Table 15, must be met by all Army personnel to continue military service.

Table 15
Visual standards for retention

Category	Standard
Aniseikonia	Correctable with iseikonic lenses
Diplopia, binocular	Intermittent and in zone greater than or equal to 20 degrees from the primary position
Hemianopsia	Unilateral allowed
Loss of an eye	Prosthesis tolerated by individual
Night blindness	No assistance required for travel at night
Visual acuity correctable to:	20/60 in each eye, or 20/50 (better eye) and 20/80 (worse eye), or 20/40 (better eye) and 20/100 (worse eye), or 20/30 (better eye) and 20/200 (worse eye), or 20/20 (better eye) and 20/800 (worse eye)
Visual field	Bilateral concentric constriction to not less than 20 degrees

Inspection of the retention standards reveals an inherent inconsistency. As shown in Table 15, the loss of an eye is acceptable if the prosthesis can be tolerated. Yet, a visual acuity requirement exists for each eye. Does this make the loss of an eye more acceptable than having an eye which sees less than the minimum visual acuity?

Mobilization standards

The standards, shown in Table 16, will be implemented only upon specific instructions from the Service Secretaries, and will apply to personnel categories as directed.

Table 16

Visual standards for mobilization

Category	Standard
Aniseikonia	Correctable with iseikonic lenses
Diplopia, Binocular	Intermittent and in zone greater than or equal to 20 degrees from the primary position or correctable by surgery
Hemianopsia	Unilateral, or due to a transitory condition
Loss of an eye	Prosthesis tolerated by individual
Night blindness	No assistance required for travel at night
Visual acuity correctable to	20/70 in the better eye
Visual field	Bilateral concentric constriction to not less than 20 degrees

References

- Department of the Army. 1976. Temporary Flying Restrictions Due to Exogenous Factors, AR 40-8, dated 17 Aug 1976.
- Department of the Army. 1986. Ophthalmic Services, AR 40-63, dated 1 Jan 1986.
- Department of the Army. 1987. Standards of Medical Fitness, AR 40-501, Update Issue 1, dated 15 Jul 1987.
- Department of the Army. 1984. Watercraft, AR 56-9, dated 1 Mar 1984.
- Department of the Army. 1977. Acceptance and Accreditation of Criminal Investigative Personnel, AR 195-3, dated 11 Jul 1977.
- Department of the Army. 1981. Aviation Warrant Officer Training, AR 611-85, dated 15 June 1981.
- Department of the Army. 1985. Commissioned Officer Classification System, AR 611-101, with Change 3, effective 30 Apr 1987.
- Department of the Army. 1985. Selection, Processing, and Training of Officer Volunteers for Explosive Ordnance Disposal Duty, AR 611-105, dated 3 Sep 1985.
- Department of the Army. 1986. Selection and Training of Army Aviation Officers, AR 611-110, dated 6 March 1986.
- Department of the Army. 1984. Manual of Warrant Officer Military Occupational Specialties, AR 611-112, with Change 5, effective 30 Apr 1987.
- Department of the Army. 1987. Enlisted Career Management Fields and Military Occupational Specialties, AR 611-201, dated 29 Apr 1987.
- Department of the Army. 1971. Selection and Assignment of Officers in Military Intelligence MOS, AR 614-103, dated 16 Sep 1971.
- Department of the Army. 1980. Selection of Enlisted Soldiers for Training and Assignment, AR 614-200, with change 3, dated 15 Nov 1982.

Department of the Army. 1986. Army Formal Schools Catalog,
DA Pam 351-4, dated 15 Jan 1986.

Department of the Army. 1977. Testing Procedures for Licens-
ing Drivers of Army Motor Vehicles, DA Pam 611-125, with
Change 1, dated 22 Jun 1977.

Department of the Army. 1984. Army Motor Transport Units and
Operations, FM 55-30, with Change 2, dated 27 Dec 1984.

US Army Infantry Training Center, Fort Benning, GA. 1985.
CMF 11 Management, USAITC Circular No. 350-23, dated 1
Jan 1985.

Appendix A

Definitions and abbreviations

D	=	diometers of lens power
Far or distant	=	vision testing at 20 feet (6 meters)
Near	=	vision testing at 16 inches (40 cm)
NPC	=	near point of convergence
PD	=	prism diometers
SE	=	spherical equivalent
VA	=	visual acuity