

## ATB – OCULAR MOTILITY

(DD Form 2808, Block 64, 'HETEROPHORIA') [As of: 1 May 2002]

### Important notes concerning the new DD Form 2808.

Unfortunately, there is some confusion about the pre-printed entries in block 64. A quick comparison of the old SF 88 entries and the new DD Form 2808 entries might be useful here:

<u>Old SF 88 Entry</u>	<u>New DD Form 2808 Entry</u>	
ESO	ES <sup>o</sup>	(has degree symbol; do NOT record in degrees)
EXO	EX <sup>o</sup>	(has degree symbol; do NOT record in degrees)
R.H.	R.H.	(no change)
L.H.	L.H.	(no change)
PRISM DIV.	Prism div.	(no change except from all capital letters)
PRISM CONV.	Prism Conv.	(no change except from all capital letters)
CT	CT	(no change; this is a <u>separate, stand-alone</u> entry even though it is somewhat 'hidden' on the form)
PC	NPR	(this is a <b>typographic error</b> and should be 'NPC')
PD	PD	(no change)

### Purpose/Indications.

Block 64. includes several sub-tests for ocular motility along with true 'heterophoria' testing, even though the title of the block is 'Heterophoria'. Therefore, each sub-test will be covered separately below.

#### Heterophoria Testing ['ES<sup>o</sup>', 'EX<sup>o</sup>', 'R.H.', 'L.H.']:

Mandatory for all Class 1/1A and comprehensive FDMes. This measures the latent or relative deviation between the eyes that occurs when fusion is interrupted. A 'phoria' can be lateral ['ES' for 'esophoria' (in), and 'EX' for 'exophoria' (out)] and/or vertical ['R.H.' for 'right hyperphoria', and 'L.H.' for 'left hyperphoria' (do not use 'hypo' entries)]. A 'phoria' does not apply to one eye or the other. It is basically a resting position of the eyes. Everyone has a phoria! But, it might be so small as to come out to zero (0) on testing.

#### 'Tropia' Testing ['CT' (then measured as 'Prism div.' or 'Prism Conv.' if needed)]:

Mandatory for all Class 1/1A and comprehensive FDMes. A 'tropia' is a manifest deviation of ONE eye and can be lateral and/or vertical with the same prefix identifiers as a 'phoria' ['eso', 'exo', and 'hyper']. 'Tropia' is also known by the names 'heterotropia', 'strabismus', and 'squint'. A tropia applies to only ONE eye or the other at any given time. It can be constant or intermittent; unilateral or alternating. Not everyone has a tropia!

The 'CT' (Cover Test) is required for all Class 1/1A FDMEs. When the 'cover-uncover' (or 'unilateral') cover test is performed properly, this test can detect the presence of a tropia. This is important because the presence of a tropia could lead to lack of fusion, reduced or no stereopsis (affecting depth perception), suppression of vision in one eye, or diplopia (double vision). Obviously, these are all non-qualifying conditions for flight school. Passing the previous 'phoria' testing does not necessarily mean a person is without a 'tropia'. But, if a person fails the 'phoria' testing or has difficulty with it, it could be an indicator that the patient may have a 'tropia'. Do not confuse this 'cover-uncover' (or 'unilateral') cover test that tests for 'tropia' with the 'cross-cover' (or 'alternating') cover test which is utilized by Optometry/Ophthalmology to verify a 'phoria'.

This test is conducted at both distance and near. If any 'tropia' is detected, the patient must be referred to Optometry or Ophthalmology for verification and measurement of the amount of 'tropia' to be entered by the 'Prism div.' (prism divergence) and 'Prism Conv.' (prism convergence) entries. If no 'tropia' is detected, the word "Ortho" is placed next to the preprinted entry of 'CT' [one entry presumes the test was conducted at both distance and near but the proper entry would be "Ortho @ distance and near" (or words to that effect)]. The 'Prism div.' and 'Prism Conv.' entries are left blank if no tropia detected.

NPR [(typo error on DD Form 2808 - should be 'NPC' (Near Point of Convergence))]:

Mandatory for all Class 1/1A FDMEs. This is the 'NPC' (Near Point of Convergence) test which determines the patient's ability to converge the eyes while maintaining fusion. [Note: there is a test called the 'NPR' (Near Point of Recovery) but that test is NOT utilized in any FDME.]

PD (Pupillary Distance):

This test is not utilized for FDMEs. However, it is the measurement of the patient's inter-pupillary distance and can be included if known. Otherwise, leave blank.

### **Equipment:**

Heterophoria Testing (ES°, EX°, R.H., L.H.):

- Armed Forces Vision Tester (AFVT) or OPTEC 2300
- (Note: the 'cross-cover' (or 'alternating') cover test and/or the von Graefe method of measuring phorias should only be used for verification of 'phoria' by Optometry/Ophthalmology. Do not confuse the 'cross-cover' test with the 'cover-uncover' (or 'unilateral') cover test that detects 'tropia'.)

'Tropia' Testing (CT – Cover Test):

- Occluder (for 'cover-uncover' (or 'unilateral') cover test)
- Distance and near visual acuity charts (or appropriate targets).
  - (Ideally, an appropriate target is an isolated letter on a visual acuity line that is one to two lines larger than the patient's best corrected visual acuity of the poorer seeing eye. So, if the patient is 20/20, then utilizing a 20/25 or 20/30 isolated letter at both distance and near would be ideal.)

NPR [(typo error on DD Form 2808- should be 'NPC' (Near Point of Convergence))]:

- Any instrument having an appropriate target that is one to two lines larger than the patient's best corrected near visual acuity in the poorer seeing eye; instrument or device must be easy for examiner to manipulate and not interfere with the testing method.
- Metric ruler for measuring in millimeters (mm).

**Set-up.**

Heterophoria Testing (ES°, EX°, R.H., L.H.):

- Patient seated comfortably at the AFVT (or OPTEC 2300).
- Test emulates distance test (optical infinity).
- Refer to manual for correct settings for model being used.

'Tropia' Testing (CT – Cover Test):

- Patient wears habitual spectacle prescription (if applicable) for the distance being tested (distance spectacle prescription when testing distance; near spectacle prescription when testing near).
- Set up the target:
  - Distance (tested at 20 feet or 6 meters) – isolated letter, one to two lines larger than the visual acuity in the patient's poorer seeing eye (with correction). For FDMes, this will almost always be a 20/25 target.
  - Near (usually tested at 16 inches or 40 cm) – reduced Snellen letter one to two lines larger than visual acuity in the patient's poorer seeing eye (with correction). For FDMes, this will almost always be a 20/25 target. The patient may hold the target but verify the test distance.
- The examiner holds the occluder.
- Sufficient room illumination to see the patient's eye movements.
- The examiner must be in a position to be able to see the patient's eyes easily without interfering with the patient's view of the target.

NPR [(typo error on DD Form 2808 - should be 'NPC' (Near Point of Convergence))]:

- Patient wears habitual near prescription (if applicable).
- If spectacles interfere with testing, attempt testing without spectacles.
- Sufficient room illumination to see the patient's eyes and for the patient to see the target.

## **Step-By-Step Procedure.**

### Heterophoria Testing (ES°, EX°, R.H., L.H.):

- Test distance vertical phoria and lateral phoria in accordance with manual for AFVT or OPTEC 2300.
- Use associated scoring key to determine amount of phoria in prism diopters.
- Vertical phoria must be 1 or less.
  - If a subject has a number other than zero in 'RH', then the 'LH' entry must be zero (and vice-versa).
- Lateral phoria must be 8 or less.
  - If a subject has a number other than zero in 'ES', then the 'EX' entry must be zero (and vice-versa).
- Refer to the Eye Clinic if vertical phoria is greater than 1 or if lateral phoria is greater than 8.

### 'Tropia' Testing (CT – Cover Test):

- This is the 'cover-uncover' (or unilateral) cover test to test for 'tropia', NOT to test for 'phoria'.
- Test at distance (20 feet) and then near (40 cm).
- Cover and uncover the right eye three times while you:
  - Watch behind the occluder for eye movement
  - Watch for eye movement after occluder is removed
- Repeat for left eye.
- Repeat entire procedure for near.
- No movement detected is recorded as "Ortho" (distance and near).
- Refer to the Eye Clinic for verification if any movement detected.
- Eye Clinic will verify 'tropia' and measure to enter amount into the 'Prism div.' or 'Prism Conv.' entries.

### NPR [(typo error on DD Form 2808 - should be 'NPC' (Near Point of Convergence))]:

- This is a binocular test; ensure test is performed with both eyes open.
- Start the fixation target at 40 cm from the patient and ensure he/she sees only one image at that start point before proceeding.
- Explain to the patient to tell you when the target appears 'double' or when it 'splits' into two images; further explain that it does not matter if the target appears 'blurry', only when it 'doubles'.
- Bring the fixation target toward the patient slowly to allow him/her to maintain fixation on the target.
- Observe patient's eyes until the patient reports that the target appears 'double' or 'split'; or until it is apparent that one eye loses fixation (turns in or out).
- Record this distance from the patient's eyes in millimeters (mm).
- Passing is 100 mm or less.
- If greater than 100 mm, first carefully retest with repeat explanation to the patient of reporting only when the image is 'double' or 'splits', not only when the image is 'blurry'. If still greater than 100 mm, refer to Eye Clinic for verification.