TECP 700-700
Materiel Test Procedure 3-2-812*
Aberdeen Proving Ground

23 February 1966

U. S. ARMY TEST AND EVALUATION COMMAND
COMMON ENGINEERING TEST PROCEDURE

FIELD OF VISION - VEHICLES

1. OBJECTIVE

The objective of this test is to determine the field of vision for the driver of transport vehicles and for the entire crew of combat vehicles.

2. BACKGROUND

Analysis of the field of view for each crew member is particularly important for combat vehicles where effectiveness of equipment may depend largely upon the operator's ability to see his surroundings. Most important is the ability of the commander to detect targets and direct the crew's efforts to bring fire to bear on them. Close-in vision should permit observation of the vehicle itself when looking downward and the sky when looking upward. Combat vehicles because of their protective shielding, cannot have unrestricted visibility. They require indirect or protected observation through various devices and a relatively constricted position on the part of the observer.

Drivers of all transport vehicles must have adequate vision for safe operation. The term "adequate" is defined as generally unobstructed vision from straight ahead to 90 degrees on each side, excluding effect of passengers.

The term "field of vision" as applied to Army vehicles refers to maximum ability to sight based upon the configuration of the test vehicle.

3. REQUIRED EQUIPMENT

a. Turning Circle of sufficient size for vehicle undergoing test
b. Transit, or
c. Azimuth Angle Measuring Device

4. REFERENCES

A. MTP 2-2-803 Human Engineering
B. MTP 3-2-813 Field of Fire

5. SCOPE

5.1 SUMMARY

This procedure describes the facilities required and the procedure used to determine the field of vision of all vehicles and the adequacy of rear windows of transport vehicles.

*Supersedes Ordnance Proof Manual 60-225

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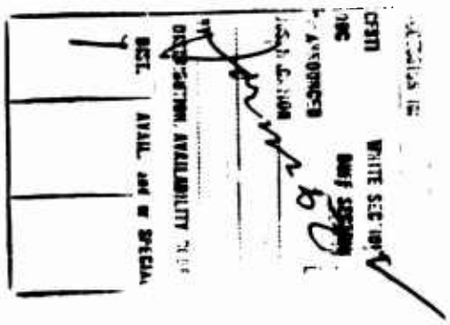

5.2 LIMITATIONS

None.

6. PROCEDURE

6.1 PREPARATION FOR TEST

A level circular area of sufficient size, such as a turning circle, is utilized for the test. Mark the periphery in 10-degree intervals, although a transit or other azimuth angle measuring device may also be used. Concentric circles may be drawn at convenient intervals to facilitate observation and recording of distance viewing data.

6.2 TEST CONDUCT

6.2.1 Combat Vehicles

Locate the vehicle with its longitudinal axis on the 0-degree azimuth line with the point of observation centered and record the following:

a. Minimum distances outward which can be seen on the ground as measured from a point on the ground directly below the observer.

b. Lateral angles which can be seen by the observer looking straight ahead (instantaneous vision) and by moving his head (maximum vision). Angles which are at intervals less than the marked-off 10-degree sectors shall be interpolated.

c. The maximum angle of view in elevation. This measurement is most conviently determined by locating the line of sight on a nearby wall and measuring the angle with a transit located similarily to the observer's eye position.

When more than one means of observation is available (as with driver's hatch open and closed, or various vision devices for the tank commander), they shall be compared.

6.2.2 Transport Vehicles

Locate the vehicle with its longitudinal axis on the 0-degree azimuth line and record the following:

a. The closest point observable, looking straight ahead, for drivers at the extreme of height represented by 90 percent of the population (MTP 2-2-803).

b. Maximum lateral angles which can be observed by the driver by simple head movements.

c. Adequacy of rear view mirrors with no load and when cab rear windows are blocked by bulky loads. Cab rear windows of tractor trucks shall also be checked for adequacy of observation when backing or jackknifing.

Interference from windshield posts or supports shall be nominal and capable of being overcome by simple movement of the head.

6.3 TEST DATA

6.3.1 Combat Vehicles

The following data shall be recorded:

a. Minimum distance which can be seen outward from the observer.
b. Lateral angles which can be seen:
   1) Instantaneous vision
   2) Maximum vision
c. Maximum angle of elevation

6.3.2 Transport Vehicles

The following data shall be recorded:

a. Minimum forward distance observable
b. Maximum lateral angles observable
c. Adequacy of rear view mirrors:
   1) Vehicle unloaded
   2) Vehicle loaded
   3) Vehicle backing (tractor trucks only)
   4) Vehicle jackknifing (tractor trucks only)

6.4 DATA REDUCTION AND PRESENTATION

Field of vision data shall be plotted on polar coordination paper (see MTP 3-2-813, Figs. 2 and 3) with the field of vision shown and all obstructions indentified. Analysis of the plotted data is based upon the vehicle specifications, but the evaluation must also consider the purpose and use of the vehicle and its equipment, and their effect upon the functions of the individual crew members.

Comparisons with similar standard equipment shall be made when applicable.