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# **UMPIRE MANUAL**

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**GENERAL HEADQUARTERS, U. S. ARMY**  
**FEBRUARY, 1941**

(Reproduced by the Command and General Staff School)  
February 17, 1941

# Report Documentation Page

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GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

353/178—F

June 10, 1941.

*CORRECTED COPY*

SUBJECT: Changes, GHQ Umpire Manual.

To : The Commanding Generals,  
All Armies, and GHQ Air Force; and  
the Chief of the Armored Force.

The following changes are made as a result of further study and experience in connection with armored forces:

*Par. 21 b.* Change to read as follows:

b. (1) While various means of antitank defense are effective in some degree, only antitank guns, mines, aircraft, and armored vehicles themselves will be recognized in maneuvers.

(2) The vehicular caliber .50 machine gun is effective from stationary vehicles and from ground mounts (except as in (3) below) against scout cars and armored half-track vehicles at ranges up to 500 yards. It is ineffective against tanks at all ranges.

(3) The caliber .50 machine gun of infantry heavy weapons companies is effective against light tanks at ranges up to 1000 yards.

(4) The 37-mm antitank gun is effective from ground mounts and from stationary vehicles against light tanks at ranges up to 1000 yards and against medium tanks at ranges up to 500 yards.

(5) The 75-mm antitank gun is effective under the same conditions as the 37-mm antitank gun.

Par. 22. Change to read as follows:

22. *Antitank Guns.* a. Losses of antitank guns will be assessed as they are overrun by armored vehicles. A gun is overrun when an armored vehicle reaches the gun without being ruled out of action by a tank umpire.

b. Antitank guns may be neutralized by the marked fire of mortars and cannon, and by foot troops, as described in paragraph 19 c.

c. Losses of antitank guns are assessed by the nearest company umpire—not by a tank umpire. Guns lost are ruled out of action for the day. They may return to action on the following day, in order to avoid undue loss of training.

Par. 40 h. Change to read as follows:

h. If opposing armored elements meet, they will be permitted to maneuver freely until the intentions of the commanders are disclosed and the results of fire and movements are apparent. Both forces then are halted by white flags, and decisions made on the following general basis:

(1) Moving fire will be effective only at ranges less than 300 yards. For stationary fire, the effect will be the same as for vehicular weapons on ground mounts (par. 21).

(2) Use of cover and disposition of vehicles should be considered in assessing losses.

(2) to (5) *Renumber (3) to (6)*

FOR THE CHIEF OF STAFF:

CLYDE L. HYSSONG,  
*Lt. Col., A. G. D.,*  
*Adjutant General.*

GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

353/19—GHQ

May 13, 1941.

SUBJECT: Changes, GHQ Umpire Manual.

To : The Commanding Generals, all Armies, GHQ  
Air Force, and The Chief of Armored Force.

1. The following changes are made in GHQ Umpire Manual, February, 1941:

Par. 8c, Airplanes: Substitute for *Wing streamers* and *Tail streamer*: As prescribed by army commanders.

Par. 27d: Delete the last clause: *and lasts five minutes* or more.

2. With reference to the first change, Circular 60-20, Office Chief of the Air Corps, April 26, 1941, prohibits the use of streamers on aircraft. The identification adopted must be effective from both ground and air, and must be such as can be removed or changed readily. The identification to be used during army maneuvers, conducted by GHQ, will be announced later, as a result of experience in corps maneuvers.

3. With reference to the second change, experience to date in marking artillery fires indicates that all fires can be marked ordinarily.

FOR THE CHIEF OF STAFF:

CLYDE L. HYSSONG  
*Lt. Col., A. G. D.,*  
*Adjutant General.*

GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

353/178

June 17, 1941.

SUBJECT: Changes, GHQ Umpire Manual.

To : The Commanding Generals,  
All Armies, and GHQ Air Force; and  
the Chief of the Armored Force.

The following changes in GHQ Umpire Manual are published for the information of all concerned:

*Par. 21 b, add:*

(6) Mines will be practice—either issue or improvised—and equipped so as to give off smoke or other visible indication of action when struck (par. 24 *k*, FM 5-30). Effect may not be assessed for assumed mines.

FOR THE CHIEF OF STAFF:

CLYDE L. HYSSONG,  
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## ADDENDA

1. Reference is made to paragraph 25, Umpire Manual, prescribed by this headquarters for use in field maneuvers.

2. The inclosure herewith has been prepared to assist commanders in planning the supply requirements made necessary by the prescription that "operations will be executed actually, so far as practicable."

\* \* \* \* \*

Inclosure of QHQ letter, April 9, 1941, subject: "Obstacles in Maneuvers."

1. The quantity of engineer materials involved in executing obstacles will vary greatly with the interpretation put on the word "practicable" in paragraph 25 *a* of the GHQ Umpire Manual. This inclosure has been prepared to standardize the interpretation of the word "practicable" and in doing this to provide a proper basis for estimating the amounts of engineer materials that will be required in field exercises.

### 2. Demolitions.

*a.* It is *not* considered practicable actually to destroy public or private roads, bridges, culverts, structures, or substantial improvements of any kind.

*b.* It is considered practicable:

(1) To simulate such destruction in detail. This will require the movement of the troops detailed to make the demolition to the site, with necessary tools and materials (less explosives, which should be represented by wooden blocks of a size approximating the explosive to be used), the simulation in detail of the operation, and their remaining at the site for the time estimated as necessary to complete the demolition. No demolition will be allowed that has not been so simulated.

(2) To require the *actual* construction of replacements for any demolition, simulated as in (1) above, when a force desires to use the site of the demolition. This would normally be done near the site of the simulated demolition. For example: A bridge to replace one whose destruction has been simulated, would be actually erected close to the original site, or at some other point, if it is decided that another location would be used were the bridge actually destroyed.

### 3. Obstacles.

a. It is *not* considered practicable actually to block a public highway or private road with an obstacle, unless it be easily removable and men are present to remove it.

b. It is considered practicable:

(1) To simulate such blocks on any highway or road, but before any such block is simulated, the block to be used must be constructed *actually* at a nearby location off the road. In rare instances, as for instance in towns, if these obstacles will endanger civilians, they should not be actually constructed but all materials should be assembled on the site or nearby, and sufficient manpower held at the site for the time estimated as necessary to construct the obstacle.

(2) Actually to build obstacles, other than road blocks, at other places in the maneuver area. Where such obstacles would needlessly destroy or endanger civilian property values the obstacles should be constructed in a nearby location and upon completion can be assumed to be in the desired location. Barbed wire obstacles and obstacles containing explosives should not be built.

(3) To cut timbers, necessary for construction, in forests near the construction sites. However, timber will be cut only in certain areas designated by army or corps commanders. Rights to cut timber in several forest areas, scattered throughout the maneuver area, should be secured prior to maneuvers.

(4) To go over any obstacle, if the movement is actual (paragraphs 25 *d* and *e*, Umpire Manual).

c. Attention is directed to paragraph 25 *d* of the Umpire Manual. Much engineer material probably will be needed to provide suitable passages around obstacles.

d. Bridges which have a small load capacity and therefore must be strengthened to carry Army loads should be considered as an obstacle. They should not be strengthened prior to maneuvers except when absolutely necessary. The necessary strengthening of bridges should be considered a normal maneuver problem.

4. Additional methods of promoting realism in field exercises can and should be developed and used.

# UMPIRE MANUAL

GENERAL HEADQUARTERS, U. S. ARMY

FEBRUARY, 1941

GENERAL HEADQUARTERS, U. S. ARMY  
THE ARMY WAR COLLEGE  
WASHINGTON, D.C.

*February 10, 1941.*

This manual will be used by the field forces pending publication by the War Department of Field Manual 105-5, Umpire Manual.

Referring to paragraph 28, vehicular radio equipment for use in marking artillery fire is being procured. Instructions as to its use will be issued later.

BY COMMAND OF GENERAL MARSHALL:



L. J. McNAIR,  
*Major General, G. S. C.,  
Chief of Staff.*

# UMPIRE MANUAL

## CONTENTS

|   | Paragraph |
|---|-----------|
| <b>SECTION I—GENERAL</b>                          |           |
| Application .....                                 | 1         |
| Maneuvers—free, continuous, brief .....           | 2         |
| Director .....                                    | 3         |
| Need of umpiring .....                            | 4         |
| Status of umpires .....                           | 5         |
| Relation of troops to umpires .....               | 6         |
| Organization of umpires .....                     | 7         |
| Identifications .....                             | 8         |
| Control flags .....                               | 9         |
| <b>SECTION II—SYSTEM OF UMPIRING</b>              |           |
| <b>GENERAL</b>                                    |           |
| Basis of umpiring .....                           | 10        |
| Decisions .....                                   | 11        |
| Successive decisions .....                        | 12        |
| <b>FIRE POWER</b>                                 |           |
| General .....                                     | 13        |
| <b>Determination of infantry fire power</b> ..... | 14        |
| Effect of artillery .....                         | 15        |
| Effect of tanks .....                             | 16        |
| <b>LOSSES</b>                                     |           |
| General .....                                     | 17        |
| Infantry .....                                    | 18        |
| Field Artillery .....                             | 19        |
| Horse Cavalry .....                               | 20        |
| Armored vehicles .....                            | 21        |
| Antitank guns .....                               | 22        |
| Material and animals .....                        | 23        |
| Airplanes .....                                   | 24        |
| <b>DELAYS</b>                                     |           |
| Obstacles .....                                   | 25        |
| Other delays .....                                | 26        |
| <b>MARKING ARTILLERY FIRE</b>                     |           |
| General .....                                     | 27        |
| Procedure .....                                   | 28        |
| <b>MISCELLANEOUS</b>                              |           |
| Chemicals .....                                   | 29        |
| Blank ammunition .....                            | 30        |
| Airplane attacks .....                            | 31        |
| Motor-vehicle lights .....                        | 32        |
| Prisoners .....                                   | 33        |
| <b>SECTION III—UMPIRE PERSONNEL AND DUTIES</b>    |           |
| <b>PERSONNEL</b>                                  |           |
| Director headquarters .....                       | 34        |
| Umpires .....                                     | 35        |
| <b>DUTIES OF UMPIRES</b>                          |           |
| General .....                                     | 36        |
| Infantry battalion umpire .....                   | 37        |



## CONTENTS

|  |    |
|--|----|
| Field artillery battalion umpire ..... | 38 |
| Company (troop) umpire .....           | 39 |
| Tank umpire .....                      | 40 |
| Fire umpire .....                      | 41 |
| SECTION IV—UMPIRE TRAINING             |    |
| General .....                          | 42 |
| Program of umpire training .....       | 43 |
| Applicatory problems .....             | 44 |
| Field maneuvers .....                  | 45 |

## UMPIRE MANUAL

## SECTION I

## GENERAL

1. APPLICATION.—This manual is applicable specifically to field maneuvers (two-sided). It may be used in field exercises (one-sided), command post exercises, and various other forms of applicatory training so far as appropriate.

2. MANEUVERS.—Maneuvers should be:

*a. Free.*—Each force should act as it chooses, subject only to field orders received, to terrain restrictions, and actions by the opposing force. Prohibited areas and other terrain restrictions should be published to both forces alike before a maneuver, preferably by overprinted map or overlay. A particular tract may be used either actually or not at all; it may not be used by assumption or constructively.

*b. Continuous.*—An armistice or rest period during a maneuver—for example, at night—lessens realism and training value.

*c. Brief.*—Fatigue limits the useful and profitable period of a maneuver to about 48 hours. A greater period should be devoted to a succession of maneuvers, separated by periods for critiques and rest.

3. DIRECTOR.—The director plans and conducts the maneuver. Although he participates in the operations of neither of the opposing forces, he acts as the superior commander of both forces for the purpose of presenting the situation, initiating and terminating the maneuver, and giving such instructions as may be necessary. He conducts the critique.

4. NEED OF UMPIRING.—Actual combat involves movement, fire, and physical contact of the opposing forces (shock action). Movement can and should be real, approaching service conditions closely. Fire must be simulated, or with blank ammunition, and its effect determined and indicated by umpires. Hand-to-hand combat also can not be real, and opposing troops are stopped short of physical contact. Thus, except for movement, it is necessary that tactical progress

be determined and indicated by umpires, based on the strength, position, and fire power of the opposing units involved.

5. STATUS OF UMPIRES.—Although umpires are assigned to units of the opposing forces, they are in no sense a part of such units. The entire group of umpires is superposed on the maneuver as a whole. Umpires are neutral in attitude and actions. Their effort is to promote realism by every proper procedure. Their decisions express and interpret tactical facts.

6. RELATION OF TROOPS TO UMPIRES.—*a.* Troops must understand and conform to procedure established for maneuvers, and accept decisions by umpires. However, troops may call on umpires for decisions when needed, and for clarification of decisions made already.

*b.* Umpires must avoid interfering with troops, and must not reveal the position of troops by exposing themselves unnecessarily. In general, unit umpires should conform to restrictions imposed on troops of the unit to which they are assigned.

7. ORGANIZATION OF UMPIRES.—*a.* Umpires are directly under the director. If necessary for large maneuvers, the director may designate a *chief umpire* and one or more assistant chief umpires for the administration, assignment, and supervision of umpires and their transportation and equipment.

*b.* Umpires are of two classes:

(1) Unit umpires, assigned to troop units with duties as described in paragraphs 36-40.

(2) Fire umpires, who mark artillery fires on the ground (pars. 27, 28, and 41).

8. IDENTIFICATIONS.—*a.* *Personnel and motor vehicles.*

| <i>Neutrals:</i>   | <i>Personnel</i>           | <i>Motor vehicles</i>                     |
|--|----------------------------|---|
| Director and higher commanders and staffs and all umpire personnel ----- | White hat band or brassard | White flag                                |
| Observers and correspondents ---   | Green hat band or brassard | Green flag                                |
| <i>Participants:</i>   |                            |   |
| Blue force -----   | Blue hat band or brassard  | Blue placard or sticker in front and rear |

|                 |                          |  |
|-----------------|--------------------------|--|
| Red force ----- | Red hat band or brassard | Red placard or sticker in front and rear |
|-----------------|--------------------------|--|

*b. Armored vehicles.*—(1) Armored vehicles (par. 21 *a*) *in action* will carry colored cloth wrapped conspicuously about the body of the vehicle—not flown as a flag—as follows:

|                  |            |
|------------------|------------|
| Blue force ----- | Blue cloth |
| Red force -----  | Red cloth  |

(2) If a vehicle is ruled out of action by an umpire, the cloth will be removed from view.

*c. Airplanes:*

|                  |                |
|------------------|----------------|
| Blue force ----- | Wing streamers |
| Red force -----  | Tail streamer  |
| Umpire -----     | Nothing        |

All airplanes of a formation will carry identifications.

9. CONTROL FLAGS.—*a.* When opposing units are in contact, and at other times when appropriate, control flags will be used as follows:

| <i>Flag</i>           | <i>Displayed by</i> | <i>Meaning</i>   |
|-----------------------|---------------------|--|
| White                 | Unit umpire         | All troops of the unit halt in place while the flag is displayed.  |
| *Blue                 | Unit umpire         | Opposing infantry (horse cavalry) may advance toward the unit where the flag is displayed, because they have fire superiority. If they do so, the weaker troops must withdraw correspondingly. |
| *Red                  | Unit umpire         | Opposing infantry (horse cavalry) may <i>not</i> advance toward the unit where the flag is displayed, because they have not fire superiority.  |
| Red with white center | Fire umpire         | Artillery fire is falling within 100 yards of the flag.  |
| Orange                | Gun crew            | Effective (par. 21 <i>b</i> ) antitank gun is firing from the flag.  |

*b.* The following sizes are suitable:

White, blue, and red: Foot troops—flag 4 x 4 feet; staff 8 feet. Mounted troops and armored vehicles—flag 2 x 2 feet; staff 5 feet.

Red with white center: Flag 2 x 2 feet; staff 5 feet.

Orange: Flag 3 x 3 feet; staff 5 feet.

\*Inapplicable to armored elements. See paragraph 40 *g*.

## SECTION II SYSTEM OF UMPIRING

### General

10. BASIS OF UMPIRING.—The outcome of combat is essentially the sum of the outcomes of many encounters between small units of the opposing forces. It follows that realism in maneuvers can be obtained only by painstaking umpiring of the actions at all points of contact. The great mass of umpires should be with or among small units which are or will be in contact with the opposing forces. Umpires at the headquarters of the director or of large units can exercise no proper influence on the progress of a maneuver, and should be kept at a minimum (par. 34).

11. DECISIONS.—When opposing forces approach contact—and occasionally under other conditions—a decision by umpires is required, in order that there may be tactical realism. The procedure is:

*a.* Umpires with the opposing units display white flags, halting their units pending a decision.

*b.* The umpires concerned then assemble promptly, and confer as to the situation of their units.

*c.* One of the following decisions should result:

(1) One force may advance, and the other must withdraw correspondingly. The white flags are replaced by red flags along the front of the stronger force, and by blue flags along the front of the weaker force.

(2) Neither force may advance. The white flags are replaced by red flags along the fronts of both forces (par. 39 *h*).

*d.* In case the umpires disagree, the view of the majority will govern. In case of a tie vote, the decision will be against the stronger force.

12. SUCCESSIVE DECISIONS.—*a.* In general, a decision results in some change of dispositions by one or both forces, in which case white flags must be displayed again and a new decision made. In other words, the combat phase of a maneuver consists of intermittent actions marked by blue and

red flags, separated by the display of white flags and the ensuing decisions.

*b.* The interruption of action, in order to permit decisions, delays the maneuver. Such delays, however, counteract the natural tendency of maneuvers to progress more rapidly than actual combat. Moreover, it is only by frequent and considered decisions, based on facts at points of contact, that a maneuver can afford correct and useful training commensurate with the effort and expense involved.

### Fire Power

13. GENERAL.—*a.* In general, combat progresses as does the infantry, and infantry progresses according to its fire power.

*b.* An infantry element should be permitted to advance only when it has decisive superiority of fire as compared with the elements immediately opposing it. This superiority never should be less than 2 to 1, and generally should be 3 or 4 to 1. If the defender has good cover and field of fire, or if the attacker has little cover, there should be no hesitation in requiring a superiority of 5 to 1, or even more.

*c.* The tendency is to favor the attacker, permitting him to advance with only a small fire superiority, whereas war experience has shown conclusively that a determined defender, well placed, can delay or even stop a greatly superior force.

*d.* The machine gun is especially effective in defense, and every effort must be made to ascertain and weigh fairly those which are effective in a given situation. Machine guns should be supplied abundantly with blank ammunition, and must fire sufficiently to reveal their presence to opposing troops and to umpires.

*e.* The situation may be such that a sound decision can be reached only by dividing the action into parts which are distinct so far as fire power is concerned. For example, one company may attack another company frontally, which is one action and need not be divided. The fire power is about the same for both forces, and the decision is a stalemate. But, if the attacking company employs one platoon frontally and two platoons to envelop, the situation is quite different and must be divided into two actions. The frontal attack is

stopped, but the enveloping attack quite possible may be decisively superior in fire power and should be permitted to advance. Thus the attacking company may be successful by virtue of its maneuver.

14. DETERMINATION OF INFANTRY FIRE POWER.—*a.* Manifestly umpires can not follow and evaluate the fire of infantry weapons individually. Nevertheless it is essential to determine the collective fire effect of infantry units in a form which permits comparison. The system adopted is based on the assumption that all weapons in action are employed with full effectiveness under the attendant conditions. Differences in fire effect then are due principally to numbers and relative effect of weapons in action and to range. It is practicable ordinarily to determine these factors with an accuracy sufficient for the purpose.

*b.* The number of weapons can be tallied readily by company umpires, and includes only those weapons whose fire is effective in the situation being decided. Weapons in support and reserve and those firing in another situation are excluded.

*c.* The relative effect of the several weapons can not be evaluated precisely, but is indicated sufficiently accurately by the following power factors:

|                               |    |
|-------------------------------|----|
| Rifle—either M1 or 1903 ..... | 1  |
| Automatic rifle .....         | 3  |
| Light machine gun .....       | 6  |
| *Heavy machine gun .....      | 10 |
| 60-mm mortar .....            | 6  |
| 81-mm mortar .....            | 15 |

*d.* Obviously fire at short range is more effective than that at long range. Fire power is reduced according to range as follows:

(1) Rifle and automatic rifle: full fire power up to 500 yards; one-half for 500-1000 yards; and none for more than 1000 yards.

(2) Machine guns of all types: full fire power up to 1000 yards; one-half for 1000-1500 yards; and none for more than 1500 yards.

(3) Mortars: full fire power within range—1000 yards for the 60-mm and 2000 yards for the 81-mm; and none for greater range.

\*Including caliber .50 when used against personnel.

*e.* Infantry fire power is determined by rifle company. Fire power of heavy weapons is added to that of the company supported. The total, modified for artillery and tank effect (pars. 15 and 16) and for losses (par. 17) is the basis of a decision according to paragraph 13 *b* above.

*f.* The following example shows how a company umpire might determine the fire power of his company in a particular situation:

|   |     |
|---|-----|
| 4 rifle squads in action; others in support;<br>squads at full strength of 12 rifles .....            | 48  |
| 2 automatic rifle squads in action, each of<br>2 automatic rifles .....                               | 12  |
| 2 light machine guns in action .....  | 12  |
| 3 60-mm mortars in action .....   | 18  |
| 4 heavy machine guns supporting the com-<br>pany, 2 of them at 800 yards and 2 at<br>1200 yards ..... | 30  |
| 2 81-mm mortars in action .....   | 30  |
| Total   | 150 |

*g.* The fire power of horse cavalry dismounted is determined as for infantry.

15. EFFECT OF ARTILLERY.—Artillery fire affects infantry action in two ways—one direct and one indirect:

*a.* When an infantry element actually is under artillery fire (par. 27), its fire power will be taken as reduced by one-half so long as the artillery fire continues. Thus, in the example above, if one rifle platoon of two rifle squads and one automatic rifle squad in action were under artillery fire, the fire power of the company would be reduced by 15.

*b.* When artillery is in position and is taken under well placed fire by the opposing artillery—counterbattery fire—such fire neutralizes the artillery subjected to it. Thus counterbattery fire assists the infantry by interrupting artillery fire against the infantry.

16. EFFECT OF TANKS.—Tanks in action will be taken as neutralizing infantry within 100 yards of any tank. The fire power of such infantry against opposing infantry is reduced to zero while the tanks are present.

#### Losses

17. GENERAL.—*a.* It is essential that the personnel losses of rifle companies and troops of infantry and horse cavalry be assessed and recorded, since such losses affect fire power and thus influence the progress of a maneuver. Units

may be weakened by accumulating losses during a maneuver so as to affect the final outcome decisively.

*b.* Losses are assessed by the umpire with the company—not by umpires with opposing units. The umpire keeps a running record of losses, and informs the company commander of them from time to time.

*c.* Personnel losses are listed below in per cent of the strength involved. Ordinarily umpires must convert such proportions into numbers according to the strength of the element concerned. The total numerical loss at any time, however, must be reconverted to percent in determining fire power. Example: The actual initial strength of a rifle company is 200. Losses are assessed for separate, successive actions as follows: entire company, 2%; 1 platoon, 1%; 2 platoons, 3%. The corresponding numerical losses are 4, 1½, and 3—total 8, which is 4% of 200. Thereafter any computed fire power, such as that of paragraph 14 *f*, is reduced by 4% or 6, on the assumption that losses of fire power other than for rifles are in the same proportion as for rifles.

*d.* Assessed casualties do not leave their companies actually; in fact, they are recorded quantitatively, not individually. They are distinct from artificial casualties designated and evacuated for training of medical units.

*e.* Assessed casualties will be considered as *not* replaced during the maneuver.

*f.* The losses to be assessed as a result of fire and other actions by the opposing force necessarily are a matter of judgement in some respects. The relative strength of the opposing forces is an especially important factor. For example, a rifle company attacking a squad might be expected to sustain comparatively few casualties; but if the company attacked another company, its losses undoubtedly would be heavy.

*g.* The following data are to be taken as a guide in weighing the various aspects of each case. It is to be emphasized that the usual tendency of umpires is to assess losses which are grossly excessive in the light of war experience.

**18. INFANTRY.**—*a.* War experience indicates that an infantry regiment may sustain extreme casualties as great as 15% during *one* day of severe combat. While losses of a

particular portion of the regiment might exceed this proportion, the figure affords a useful check on the total casualties assessed by company umpires.

*b.* Company umpires should penalize improper formations and undue exposure by increased losses. Doubling the usual losses is a severe penalty in this connection.

*c.* The average losses sustained by infantry are indicated as follows:

|  |                |
|--|----------------|
| Fire by opposing infantry .....  | 1-3% per hour  |
| When two infantry units of substantially equal strength oppose each other under the same conditions, the casualties may be taken as 2% per hour. For example, a company of 200 men would lose 4 men per hour of active combat. If a unit attacks a strong position, or if it encounters especially heavy fire, the rate may be 3% per hour. If a unit is on the defensive, well protected, or if it attacks a markedly inferior force, the loss may be only 1% per hour. |                |
| Infantry within a battery concentration<br>200 yards in diameter .....   | 1% per minute  |
| Infantry in column which passes through a<br>battery concentration .....   | 2% per case    |
| Infantry overrun by tanks—elements<br>within 100 yards of any tank .....   | 3% per attack  |
| Infantry attacked by mounted horse cav-<br>alry—elements actually struck .....   | 2% per attack  |
| Infantry in column attacked by an appro-<br>priate number* of low-flying air-<br>planes—   |                |
| with surprise .....  | 10% per attack |
| without surprise .....   | 2% per attack  |
| Infantry deployed or in bivouac attacked<br>by an appropriate number* of low-<br>flying airplanes  |                |
| with surprise .....  | 3% per attack  |
| without surprise .....   | 1% per attack  |

**19. FIELD ARTILLERY.**—*a.* War experience indicates that casualties of field artillery are about 10% of those of infantry. Thus it is unlikely that personnel losses of field artillery will interrupt its firing or affect the progress of the infantry. Hence there is no need of assessing casualties of field artillery.

*b.* It is sufficient in a maneuver to consider only interruption of fire (neutralization) if artillery is in position, and delay if in movement.

*c.* Neutralizing effect is indicated as follows:

Artillery in position under effective counterbattery fire—out of action for the duration of the fire.

\*1 airplane against a company or less; 3 airplanes against a battalion; and 9 airplanes against a regiment. If the number is materially smaller or larger, the effect is assessed correspondingly.

Artillery in position overrun by tanks—out of action for the day.

Artillery in position attacked by foot or mounted troops—firing confined to resisting attack. Decision as to capture or destruction of a battery is based on relative small arms fire power (par. 14) in directions other than those of artillery pieces. No advance is permissible against cannon fire at short range.

d. For delays of field artillery in movement, see paragraph 26.

20. HORSE CAVALRY.—a. Personnel losses of horse cavalry fighting mounted vary largely with speed, formation, and cover, and are indicated as follows:

|  |               |
|--|---------------|
| Mounted cavalry attacking deployed infantry -----  | 5% per attack |
| Mounted cavalry attacking infantry in column -----   | 3% per attack |
| Mounted cavalry attacking artillery in position -----  | 2% per attack |
| Mounted cavalry attacking artillery in column -----  | 2% per attack |
| Mounted cavalry which passes through a battery concentration -----                                   | 2% per case   |
| Mounted cavalry attacked by an appropriate number of low-flying airplanes—same as infantry (par. 18) |               |

b. Personnel losses of horse cavalry fighting dismounted are the same as infantry (par. 18).

21. ARMORED VEHICLES.—a. Such vehicles include tanks, scout cars, and other which are armored and armed, regardless of whether armored force or cavalry.

b. While various means of antitank defense are effective in some degree, only antitank guns, mines, aircraft, and armored vehicles themselves will be recognized in maneuvers. Effective antitank guns are the caliber .50 machine gun and cannon of all calibers. Mortars will be considered ineffective. Mines will be practice—either issue or improvised—and equipped so as to give off smoke or other visible indication of action when struck (par. 24 k, FM 5-30). Effect may not be assessed for assumed mines.

c. Vehicles disabled or destroyed by fire or mines will be ruled out of action for the day. They may return to action on the following day, in order to avoid undue loss of training.

d. The average losses sustained by armored vehicles are indicated as follows:

Armored vehicles passing through a battery concentration—  
2% of vehicles in each case.

Armored vehicles under fire with direct laying:

Moving toward gun firing—3 vehicles per gun firing if fire is opened at not less than 500 yards; 2 vehicles per gun firing if fire is opened at not less than 300 yards; and 1 vehicle per gun firing if fire is opened at not less than 150 yards. Vehicles charging a gun with a view of overrunning it.

Other cases—1 vehicle per gun per minute of firing at ranges of 500-1000 yards; and 1 vehicle per gun per half-minute of firing at ranges less than 500 yards. Vehicles not charging a gun, or held up by obstacles in attempting to do so.

Armored vehicles passing over mines—1 vehicle per mine detonated.

Armored vehicles attacked by an appropriate number of low-flying airplanes—same as infantry (par. 18).

Tanks against tanks—losses in inverse ratio of strengths of opposing forces. Example: 30 Blue tanks against 20 Red tanks—losses in ratio of 2 Blue to 3 Red. See paragraph 40 h.

22. ANTITANK GUNS.—a. Losses of antitank guns will be assessed only as they are overrun by armored vehicles. A gun is overrun when an armored vehicle reaches the gun without being ruled out of action by a tank umpire.

b. While armored attacks frequently are supported by machine guns and cannon and there will be losses of antitank guns due to such fire, antitank guns offer a difficult target, losses will be comparatively small, and it is impracticable to determine them.

c. Losses of antitank guns are assessed by the nearest company umpire—not by a tank umpire. Guns lost are ruled out of action for the day. They may return to action on the following day, in order to avoid undue loss of training.

23. MATERIEL AND ANIMALS.—It is unnecessary to assess losses of materiel and animals, other than armored vehicles (par. 21) and antitank guns (par. 22). While such losses are substantial in combat, the needs of maneuvers are met satisfactorily by considering other factors.

24. AIRPLANES.—a. Losses in air combat will be assessed by air umpires according to Air Corps procedure.

b. The average losses sustained by airplanes under fire of 3-inch antiaircraft artillery are indicated as follows:

| Altitude of airplane<br>Feet | Effective horizontal<br>range of guns—<br>yards | Airplanes within range<br>shot down per minute<br>by one battery (4 guns) |
|------------------------------|---|---|
| 0 to 2,000                   | 7,000   | $\frac{1}{2}$ to 0  |
| 2,000 to 4,000               | 7,000   | $\frac{1}{3}$   |
| 4,000 to 8,000               | 6,000   | $\frac{1}{2}$   |
| 8,000 to 12,000              | 6,000   | $\frac{3}{8}$   |
| 12,000 to 17,000             | 6,000   | $\frac{1}{4}$   |
| Over 17,000                  | 4,000   | $\frac{1}{8}$   |

For a formation of airplanes, losses will be taken to the nearest whole number. Example: 30 airplanes at over 17,000 feet, exposed for one minute, loss four airplanes.

For a single airplane, the fractional loss will be taken to the nearest  $\frac{1}{4}$ , and the airplane considered either destroyed or undamaged according to lot. Example: loss of  $\frac{3}{4}$  airplane. Mark three slips of paper *destroy* and one *no damage*. The one drawn is the decision.

The indicated losses are applicable at night only while the target is illuminated.

c. For 37-mm antiaircraft guns, the loss is one airplane for each platoon (two guns) firing for 30 seconds within a slant range of 3,000 yards and an altitude of 5,000 feet. Losses are not assessed for altitudes greater than 5,000 feet.

d. For caliber .50 antiaircraft machine guns, the loss is one airplane for each platoon (four guns) firing for 15 seconds within a slant range of 2,000 yards and an altitude of 3,000 feet. Losses are not assessed for altitudes greater than 3,000 feet.

e. It is impracticable to assess losses for antiaircraft firing by small arms of less than caliber .50. However, such weapons are effective against low-flying airplanes when the volume of fire is sufficiently great, and troops should be required to simulate antiaircraft fire as a matter of training.

### Delays

25. OBSTACLES.—*a.* Demolitions and other obstacles executed by engineers have the primary purpose of delaying the opposing forces. The work will be either actual or simulated in detail, under supervision of unit umpires, so as to confine the number and effect of the obstacles approximately to realities. The availability and consumption of material will be checked and tallied. Operations will be executed ac-

tually, so far as practicable, and the remainder estimated as to time and personnel.

b. Upon completion of a simulated obstacle, the umpire will supply a written statement as to the nature and extent of the work, the delay to be assessed on account of it, and the time and personnel required to remove or repair it.

c. A simulated obstacle must be guarded in order to enforce compliance by opposing troops with the conditions attached to it by the umpire. The guard is the responsibility of the engineer unit executing the obstacle. The unit will supply the necessary personnel umpire identifications, and white flags. The guard will have the authority of umpire personnel, and will retain the umpire's statement as to the nature of the obstacle. Approaching troops will be stopped by the white flag, and conditions will be explained to them by the guard. Troops failing to comply with the guard's instructions will be identified by it and reported to the engineer commander or to an umpire for disciplinary action.

d. It is permissible to go around an obstacle, provided the movement is actual. Assumed or constructive movements will not be permitted even with appropriate delays.

e. If an obstacle is defended by troops and is attacked by opposing troops, the action will be decided in the same manner as other actions between troops. The conditions attached to the obstacle itself will be effective only after completion of the troop action.

26. OTHER DELAYS.—Delays due to causes other than obstacles are indicated as follows:

- Road, bridge, or other defile interdicted by a battery concentration—delay for the duration of the fire.
- Column attacked by an appropriate number (footnote par. 18 *c*) of low-flying airplanes, or overrun by *tank* elements—
  - Foot troops only—delay of 15 minutes.
  - Vehicle, mounted, or mixed column—delay of 30 minutes.
- Column attacked by armored elements, other than tanks, or by mounted cavalry—delay for the duration of the attack.
- Ponton bridge under construction attacked by small-arms fire at a range of less than 1,000 yards, or by a battery concentration—delay in construction for the duration of the fire.
- Ponton bridge in use attacked by nine airplanes—
  - Repair material sufficient for one-third of bridge on hand at site—traffic interrupted for one hour.
  - Repair material not on hand at site—traffic interrupted until material is delivered plus one hour.

### Marking Artillery Fire

27. GENERAL.—*a.* Every effort will be made to mark on the ground the point of fall and duration of all artillery fire which is reasonably concentrated—except counterbattery fire (par. 28 *c*).

*b.* A flag (par. 9) is placed at the center of the fire of each battery, and the fire is taken as effective within 100 yards of the flag in all directions. It is desirable when practicable to supplement the flag by a sound or pyrotechnic signal, in order to attract attention to the flag initially.

*c.* If a battalion of two or three batteries fires simultaneously on the same target, a flag is used for each battery. The flags are separated slightly in marking.

*d.* No attempt is made to mark the fire of a battery unless such fire is confined to an area 200 X 200 yards or less, and lasts five minutes or more.

28. PROCEDURE.—The procedure is generally as follows:

*a.* Each artillery battalion umpire and each fire umpire is furnished a vehicular voice radio. A single frequency is used. A fire umpire covers the general area of one infantry regiment.

*b.* The artillery battalion umpire reports the code coordinates of the center of each battery target to the nearest 100 yards and the duration of the fire in minutes. Example: M8-T3-10. If more than one battery fires against the same target, the number of batteries is added. Example: M8-T3-10-3.

*c.* The report is received by all artillery battalion umpires and all fire umpires. Except when the target is artillery, the fire is marked by either the artillery battalion umpire or the fire umpire in whose area the target lies. If the fire is effective against opposing artillery, the battalion umpire suspends the fire of batteries which are neutralized. It is unnecessary to mark the fire in this case.

*d.* If fire is conducted by means of *observation* of the target, the report will conclude with the nature of the target. Example: M8-T3-10-3-Machine guns. The fire umpire then goes to the point designated by the coordinates, but places the flag *at* the nearest machine guns, regardless of coordinates. If the target is moving infantry, it may be necessary

to depart considerably from the coordinates, due to lag of marking and movement of the target.

### Miscellaneous

29. CHEMICALS.—*a.* In connection with decision involving fire power and losses, it is impracticable to make distinctions as between high explosive and chemical ammunition. Artillery fire is weighed in general terms, regardless of calibers and types of ammunition. Similarly the effect of attack by low-flying airplanes is the same, regardless of whether machine guns, bombs, or chemicals are used.

*b.* Also no attempt is made to evaluate the effect of smoke, if its use is simulated. Visibility will be actual—both day and night.

30. BLANK AMMUNITION.—*a.* The use of blank ammunition at maneuvers promotes realism and facilitates decisions. Also it is helpful in accustoming young soldiers to the sounds of battle.

*b.* Caliber .30 blank ammunition, if available, will be used freely for ground fire—especially with machine guns (par. 13 *d*). *Blank ammunition will not be fired toward personnel at less than 20 yards.*

*c.* No blank ammunition will be fired against airplanes, since the supply is inadequate for the purpose.

*d.* All artillery fire will be simulated; no blank ammunition is available.

31. AIRPLANE ATTACKS.—Both fire and bombing by airplanes against ground targets desirably should be indicated by visible means, such as small paper bags of flour or similar material. Lime water and certain other sprays also are useful.

32. MOTOR-VEHICLE LIGHTS.—Whether, when, and where lights of motor vehicles will be used at night is a command decision. Operations without lights usually are practicable, subject to local laws and conditions, and add much to the realism of maneuvers.

33. PRISONERS.—*a.* Opposing forces should not come into physical contact (par. 4). Hence, if umpiring is effective, there should be few prisoners ordinarily.



b. However, units or individuals may be cut off by maneuver, and the action may be such that in reality they would be either captured or destroyed. In this case, umpires should permit prisoners to be taken and handled as such for the duration of the maneuver or any lesser period—as desired by the captor. Prisoners remove from view identifications as participants (par. 8 a).

## SECTION III

## UMPIRE PERSONNEL AND DUTIES

## Personnel

34. DIRECTOR HEADQUARTERS.—*a.* Ordinarily it should be practicable to operate the director's headquarters (par. 3) with not more than the tabular staff of the tactical unit which he commands. If additional personnel is required, it should be obtained, so far as practicable, from sources other than participating troop units.

*b.* Umpires at headquarters of large units should be unnecessary. Reports of operations can and should be made through normal tactical channels to director headquarters as required. Additional details can be obtained readily by liaison officers sent out periodically from director headquarters.

*c.* A reserve pool of unit and fire umpires at director headquarters may be advisable, in order to meet abnormal, temporary, and unforeseen needs and to provide reliefs if necessary.

*d.* Observers and correspondents (par. 8) are received, supplied, and directed by director headquarters. Paragraph 6 b is applicable to them as well as to umpires.

35. UMPIRES.—*a.* The following personnel is suitable and adequate ordinarily:

| <i>Umpire assignment</i>  | <i>Officers</i> | <i>(a)</i>                   |                       | <i>(b)</i> |
|---------------------------|-----------------|------------------------------|-----------------------|------------|
|                           |                 | <i>Enlisted men</i>          | <i>Transportation</i> |            |
| Infantry battalion        | 5 (c)           | 1 ch; 7 fo (d)               | Umpire—1 truck        |            |
| Field artillery battalion | 1               | 1 rad; 1 ch; 1 fo (c)        | Umpire—1 truck        |            |
| Engineer lettered company | 1               | 1 fo                         | Unit                  |            |
| Horse cavalry rifle troop | 2               | 2 fo                         | Unit (f)              |            |
| Antiaircraft battery      | 1               | 1 fo                         | Unit                  |            |
| Armored element (g)       | 1               | —                            | Unit (h)              |            |
| Artillery fire (i)        | 1               | 1 NCO; 1 rad; 2 ch; 2 fo (c) | Umpire—2 trucks       |            |

(a) Abbreviations: NCO—noncommissioned officers; rad—radio operator; ch—chauffeur; fo—flag orderly.

(b) Umpire—supplied by director headquarters; unit—supplied by unit to which the umpire is assigned.

- (c) 1 battalion; 1 each rifle company; 1 supernumerary.
- (d) 1 battalion; 2 each rifle company.
- (e) 1 vehicular radio.
- (f) Mounts.
- (g) Single vehicle or small unit which operates together (par. 21 *a*).
- (h) Rides in an armored vehicle.
- (i) 1 per infantry regiment (par. 41).

*b.* Umpire personnel is supplied by the director, preferably from sources other than participating troop units, except that flag orderlies may well be furnished by the units concerned.

*c.* Umpire personnel is quartered and rationed with either director headquarters or troop units, as is more convenient.

*d.* Director headquarters supplies flags and other umpire equipment as needed, and the transportation as indicated in *a* above.

#### Duties of Umpires

36. GENERAL.—*a.* An umpire as such has neither command nor instructional functions (par. 4).

*b.* An umpire should avoid disclosing to troops information obtained through umpire activities and which the troops should seek with their own means.

*c.* Umpires restrain movement of troops in the degree necessary to prevent physical contact of opposing forces and permit proper decisions, but they do not order movement. So far as umpires are concerned, movement is either permitted or not permitted; but if permitted, it is not obligatory. Movement is either ordered by commanders or forced by the enemy.

*d.* Umpires will familiarize themselves with terrain restrictions. While compliance with such restrictions is a responsibility of command, umpires will assist in this connection by timely advice. In case a restriction actually is violated, the unit umpire concerned will report the circumstances to the director as soon as possible.

37. INFANTRY BATTALION UMPIRE.—*a.* An infantry battalion umpire is the senior of the umpires assigned to the

battalion. He is in charge of all umpire personnel and equipment with the battalion.

*b.* He disposes the umpires so as best to meet anticipated developments and equalize the burden of umpiring. Ordinarily it is advisable that there be an umpire with each rifle company.

*c.* He may remain with the battalion commander as a general procedure, but supervises the company umpires and participates in umpiring during active periods.

38. FIELD ARTILLERY BATTALION UMPIRE.—*a.* An artillery battalion umpire reports the fire of each battery (par. 28).

*b.* He reminds the battalion commander that, when batteries fire on their own initiative, such fires must be reported to the battalion commander; otherwise, the fires will not be marked.

*c.* He acts as a fire umpire (pars. 7 *b* and 28 *c*) for targets in his area, other than artillery.

*d.* When a battery is subjected to correctly placed counterbattery fire, he suspends its fire (par. 28).

*e.* So far as practicable, he notes whether fires are delivered properly. In case the fires do not simulate service conditions in all essential details, he may omit reporting such fires.

*f.* He follows the state of ammunition supply, and causes firing to be suspended when the supply is exhausted.

39. COMPANY (TROOP) UMPIRE.—*a.* Decisions reached by company umpires of opposing units in contact determine the progress of a maneuver. If decisions are sound, the maneuver will be realistic and successful. If decisions are ill-considered and unsound, situations and outcomes will be false and the lessons derived erroneous.

*b.* A company umpire posts himself so as best to observe the action of the company. Ordinarily he is with the leading element of the company, whether it be a patrol or a combat formation. He remains habitually with the company, except when conferring with other umpires in reaching a decision—during which period the company should be halted by white flags.

*c.* His basic method of control is by flags (par. 11). He avoids giving oral instructions in connection with his decisions, for they do not reach all elements. However, certain explanations may be necessary occasionally.

*d.* Whenever the situation as it affects his unit becomes obscure to him in any way—due to either own or opposing force—he causes white flags to be displayed at once, halting the action. Similarly, when white flags are displayed with the opposing unit, he displays them with his unit. The display of white flags necessarily is a frequent and indispensable requisite of sound and informed umpiring.

*e.* The following arm signals are convenient for use by umpires in communicating with their flag orderlies:

Both arms extended vertically upward—white flags.

One arm extended horizontally toward either one force or the other—action resumed. One force may advance in the direction indicated; the other force must withdraw correspondingly. Red flags with the advancing force; blue flags with the withdrawing force.

Both arms extended laterally in opposite directions—action resumed, but neither force may advance. Red flags along both fronts.

*f.* Flags must be placed so as to be visible to the troops. Opposing lines of blue and red—or red and red—flags should be separated sufficiently to avoid confusion as to for whom they are intended.

*g.* Blue and red control flags are used when opposing forces (except armored elements, see par. 40 *g*) approach physical contact. They are discontinued when physical contact no longer is likely. However, the handling of flags must not be permitted to reveal a withdrawal.

*h.* Umpires should impress upon company commanders that all elements of the company halt in place and cease firing when white flags are displayed in front of the company. When red flags are displayed with the unit opposing the company, the company may not advance toward such flags, but is free to maneuver around them or change its dispositions otherwise. During contact, if troops see no flags in their front, they do not advance but seek a vantage point from which flags can be seen. An advance may be made only against blue flags.

*i.* The procedure indicated above is applicable in general to night operations. Company umpires should be well forward, in order to anticipate contact and make decisions

promptly. During contact, it may be necessary to illuminate control flags by flashlights, supplemented on occasions by oral decisions to units immediately involved. Rotation of umpires for night duty is advisable, in order to permit rest and sleep.

*j.* If contact is made and there is but one umpire present, he will ascertain the situation of both forces, make a decision, and communicate it in the most practicable manner. If no umpire is present, the troops will be halted short of physical contact by their commanders, each of whom will send for an umpire.

40. TANK UMPIRE.—*a.* Umpires for tanks and other armored vehicles must be provided in numbers such that every contact with the opposing force—even if by a single vehicle—will be umpired.

*b.* A tank umpire rides in the leading vehicle of a formation.

*c.* He assesses losses only of armored vehicles—not opposing personnel nor antitank guns.

*d.* He keeps a sharp lookout for white flags of obstacles (Par. 25), orange flags of antitank guns (par. 9), and indications of practice mines (par. 21). Whenever any are encountered, he halts the armored element by his own white flag, ascertains the situation, and makes his decision (par. 21).

*e.* Armored vehicles ruled out of action by an umpire may be directed to remain halted or to proceed to a designated point, in the discretion of the umpire. The identifying blue or red cloth is removed.

*f.* Antitank guns which are brought into action during display of white flags may be disregarded in making a decision.

*g.* Armored elements obey the white control flag, regardless of whether displayed by their own or another umpire. They disregard blue and red flags. They are free to move unless and until halted by the white flag. After being halted, they are free to move again when the white flag disappears, unless ruled out of action.

*h.* If opposing armored elements meet, they will be permitted to maneuver freely until the intentions of the commanders are disclosed and the results of movement are apparent. Both forces then are halted by white flags, in order

to decide as to losses. The basis of decision will be generally as follows:

(1) Losses will be assessed only at ranges less than 300 yards. Vehicles which do not engage within this range will be disregarded.

(2) Relative strength will be determined by the number of usable guns which are effective against armor (par. 21 b).

(3) It is to be assumed that combat at close range will result in rapid destruction of the weaker force; and unless maneuver demonstrates that certain elements would have escaped, complete destruction should be ruled.

(4) Losses of the stronger force will be determined from those of the weaker force (par. 21 d).

(5) Example: Blue—30 guns engaged. Red—20 guns engaged. Engagement lasts 5 minutes. Red is destroyed. Blue loses two-thirds as many vehicles as Red.

41. FIRE UMPIRE.—*a.* Fire umpires are provided on the basis of one per infantry regiment participating in a maneuver (par. 35). Artillery battalion umpires also mark fires within their areas (par. 38).

*b.* A fire marker receives reports of artillery fire (par. 28), and marks those within his area.

*c.* Realistic participation by field artillery in maneuvers depends greatly on correct and rapid marking of fires.

## SECTION IV

## UMPIRE TRAINING

42. GENERAL.—*a.* Maneuvers are the highest form of troop training in peace. No matter how highly trained the troops may be, maneuvers can be successful only when umpired effectively, and umpiring will be effective only insofar as umpires are trained.

*b.* Every troop unit should maintain a certain quota of trained umpire personnel, which may be used in rotation at maneuvers without interfering unduly with unit training.

43. PROGRAM OF UMPIRE TRAINING.—*a.* One week of well directed instruction is sufficient to prepare umpires to participate in small maneuvers. Large maneuvers preferably should be umpired—in key positions at least—by officers who have had experience in small maneuvers.

*b.* The following program is suitable for officers who have little or no umpire training. It should be modified appropriately for those with umpiring experience.

| Subject  | Nature     | Hours |
|--|------------|-------|
| <i>Preliminary instruction:</i>  |            |       |
| Methods, principles, and general procedure                                 | Conference | 2     |
| Fire power—principles and illustrative problems                            | Conference | 4     |
| Losses—principles and illustrative problems                                | Conference | 2     |
| Delays—principles and illustrative problems                                | Conference | 1     |
| Control flags—procedure  | Conference | 1     |
| Control flags—field demonstration  | Practical  | 2 12  |
| <i>Action of the arms, with particular reference to umpiring problems:</i> |            |       |
| Infantry   | Conference | 1     |
| Field artillery  | Conference | ½     |
| Engineers  | Conference | ½     |
| Armored elements   | Conference | ½     |
| Horse cavalry  | Conference | ½     |
| Aviation   | Conference | ½     |
| Antiaircraft elements  | Conference | ½ 4   |
| <i>Applicatory problems:</i>   |            |       |
| Fire power   | Test       | 3     |
| Losses   | Test       | 2     |
| Delays   | Test       | 1     |
| Procedure  | Test       | 2 8   |

|   |             |   |    |
|---|-------------|---|----|
| <i>Field maneuvers</i> —battalion against battalion:                        |             |   |    |
| Advance to contact; reconnaissance; security; meeting engagement -----      | Practical   | 4 |    |
| Attack and defense; horse cavalry in reconnaissance and counterattack ----- | Practical   | 4 |    |
| Attack and defense; armored vehicles in reconnaissance and attack -----     | Practical   | 4 |    |
| Pursuit and withdrawal -----  | Practical   | 4 | 16 |
|   |             |   | 40 |
|   | Total ----- |   | 40 |

44. **APPLICATORY PROBLEMS.**—*a.* Such problems are simply those which arise in field maneuvers, solved in the classroom where they can be discussed and clarified. One or a few maneuvers yield an abundance of problems for the instruction contemplated here.

*b.* Problems in procedure are exemplified by questions such as the following:

(1) An antitank gun sees an armored vehicle at 500 yards, moving toward the gun, but the vehicle carries neither blue nor red cloth. Should the gun fire against the vehicle? Why? (pars. 8 *b* and 40 *e*)

(2) You as company umpire display the white control flag. Shortly afterward you note a support platoon of the company moving toward the flank of the company. What action do you take? (par. 39 *h*)

(3) You as company umpire display red control flags along the front of your company. There are red flags opposite your company also. What movement, if any, may your company make? (par. 39 *h*)

(4) You as company umpire are displaying red control flags. Your company sees no flags at all in its front. May the company advance? (par. 39 *h*)

(5) You as company umpire are displaying no control flags, and your company sees no flags at all in its front. May the company advance? (par. 39 *g*)

(6) A caliber .30 machine gun fires against a hostile tank. Should an orange flag be displayed? If so, by whom? (pars. 9 *a* and 21 *b*)


(7) 12 riflemen and 2 automatic rifles are deployed and firing on a front of 40 yards. A red flag with white center is placed 10 yards in rear of the right of the line. What is the fire power of the squad within a range of 500 yards? At 800 yards? (par. 14 *c* and *d* and 15 *a*)

(8) An artillery fire flag is placed so that it is partially effective on the company of which you are umpire. Who assesses the losses of your company—you or the fire umpire? (par. 17 *b*)

(9) The company of which you are umpire is advancing toward the enemy in approach formation. It meets fire at about 500 yards. What is your position with respect to your company at this time? Have you any control flags displayed? What do you do, if anything, when the hostile fire is opened? (pars. 4, 39 *g*, 17 *b*)

(10) The company of which you are umpire is marching on a road, well to the rear of a large column. Combat aviation attacks the column some distance ahead of you, and approaches your company. The company immediately takes a dispersed formation on both sides of the road, and opens fire against the airplanes as they approach. What percentage of losses do you assess? (par. 18 *c*)

45. **FIELD MANEUVERS.**—Small field maneuvers afford the director a means of verifying practically the fitness of his umpires. Two battalions or a similar force is as useful for the purpose as a larger one. A critique after each maneuver or at the end of each day is essential in order to correct faults thoroughly. Maneuvers should be varied, so that umpires will acquire confidence in their ability to handle all situations likely to be encountered.



AVIATION SUPPLEMENT


to

UMPIRE MANUAL

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GENERAL HEADQUARTERS, U.S. ARMY

August 21, 1941



## AVIATION SUPPLEMENT TO UMPIRE MANUAL

| GENERAL                                      | PARAGRAPH |
|--|-----------|
| Application .....                            | 1         |
| Need of air umpiring .....                   | 2         |
| Visible indications of attack .....          | 3         |
| Assignment of air umpires .....              | 4         |
| Assignment of airplanes to air umpires ..... | 5         |
| Status of air umpires .....                  | 6         |
| Decisions .....                              | 7         |
| RECONNAISSANCE AND OBSERVATION AVIATION      |           |
| Action of air umpires .....                  | 8         |
| Validity of information .....                | 9         |
| Number of missions .....                     | 10        |
| Servicing .....                              | 11        |
| Improper employment .....                    | 12        |
| Air encounters .....                         | 13        |
| Losses .....                                 | 14        |
| O-47 airplanes .....                         | 15        |
| A-20 airplanes .....                         | 16        |
| BOMBARDMENT AVIATION                         |           |
| Action of air umpires .....                  | 17        |
| Number of missions .....                     | 18        |
| Servicing .....                              | 19        |
| Losses .....                                 | 20        |
| Attacks against airdromes .....              | 21        |
| PURSUIT AVIATION                             |           |
| Action of air umpires .....                  | 22        |
| Number of missions .....                     | 23        |
| Losses .....                                 | 24        |
| MISCELLANEOUS                                |           |
| Operating strength .....                     | 25        |
| Weather .....                                | 26        |
| Equipment .....                              | 27        |
| Reporting ground objectives .....            | 28        |
| Small-arms antiaircraft fire .....           | 29        |
| Air fighting .....                           | 30        |

## GENERAL

1. APPLICATION.—This supplement to GHQ Umpire Manual, 1941, is applicable to aviation participating with ground units in maneuvers. It is particularly for the information and guidance of air umpires.

2. NEED OF AIR UMPIRING.—The ultimate results of air attack and air fighting depend on the action of small air units in carrying out their missions. Likewise the effectiveness of air reconnaissance and observation depends on the action of the pilot-observer teams. Thus realism in maneuvers involving aviation requires painstaking umpiring in the air as well as on the ground. Air umpires should be assigned to and fly with the small air units.

3. VISIBLE INDICATIONS OF ATTACKS.—Air attacks against ground targets desirably should be indicated by visible means, such as small paper bags of flour or similar material, or lime water and certain other sprays. Otherwise it is difficult for ground umpires to recognize the objects of attack and assess the effect properly. See also paragraph 28.

4. ASSIGNMENT OF AIR UMPIRES.—One air umpire as a minimum should be assigned to each squadron and to each group. Two or three air umpires should be assigned to director headquarters.

5. ASSIGNMENT OF AIRPLANES TO AIR UMPIRES.—Each air umpire ordinarily is provided with an umpire airplane for his exclusive use. An umpire airplane should be identified as such. Occasionally umpires with units having multiplace airplanes may find it expedient to fly as passengers of unit airplanes, rather than in umpire airplanes.

6. STATUS OF AIR UMPIRES.—Air umpires, although assigned to particular squadrons and groups, are in no sense part of such units, but must be neutral in attitude and actions.

7. DECISIONS.—*a.* Ground umpires make the following decisions:

(1) Losses of airplanes due to antiaircraft fire, reporting details either to director headquarters or directly to the air umpire concerned.

(2) Ground effects due to air action.



b. Air umpires make the following decisions:

(1) Admissability and validity of information, including photographs, obtained by reconnaissance and observation teams.

(2) Losses of airplanes in air fighting.

## RECONNAISSANCE AND OBSERVATION AVIATION

8. ACTION OF AIR UMPIRES.—An air umpire should be over the air area where air missions are being performed, so as to permit him to maintain periodic contact with the airplanes of his unit. Thus he determines the manner of performance of reconnaissance and observation missions, weather conditions, and the general progress of the maneuver. Later he is enabled to check the validity of the information reported by the observation teams.

9. VALIDITY OF INFORMATION.—An air umpire checks observer reports and air photographs. He permits the squadron to furnish to ground commanders only such information, either written or photographic, as is proper considering penalties for improper conduct of flying missions, weather, and assessed losses of airplanes and crews.

10. NUMBER OF MISSIONS.—An air umpire will permit a squadron to perform not more than two flying missions of two hours each per combat crew per 24 hours, or one mission of maximum endurance per combat crew per 24 hours.

11. SERVICING.—Squadrons will be required to allow not less than one hour between the missions of each airplane for actual or theoretical servicing, reloading and adjusting guns, cameras, flares, and minor repairs.

12. IMPROPER EMPLOYMENT.—Observation aviation should not be employed on pursuit, dive bombing, or low-altitude horizontal bombing missions. If such missions are ordered, air umpires will assess *double* the losses given for aircraft designed for the purpose. Bomb racks will not be assumed.

13. AIR ENCOUNTERS.—Observation teams will be required to report all encounters with opposing pursuit or fighter aviation, giving the time and duration. These reports will be used as a basis of assessing airplane losses.

14. LOSSES.—Losses of *single* reconnaissance and observation airplanes as a result of air fighting will be assessed as follows:

| LOSSES                            |                                       |                             |                               |                                 |
|-----------------------------------|---------------------------------------|-----------------------------|-------------------------------|---------------------------------|
| <i>Number of opposing pursuit</i> | <i>Number of separate engagements</i> | <i>Liaison courier O-51</i> | <i>Corps observation O-47</i> | <i>Army reconnaissance A-20</i> |

Day, good visibility, without pursuit protection:\*

|           |   |   |   |   |
|-----------|---|---|---|---|
| 1         | 1 | 1 | 0 | 0 |
| 1         | 2 | — | 1 | 0 |
| 1         | 3 | — | — | 1 |
| 2         | 1 | 1 | 1 | 0 |
| 2         | 2 | — | — | 1 |
| 3 or more | 1 | 1 | 1 | 1 |

Night, but only if the airplane is illuminated by searchlights just prior to or during the pursuit assault:

|   |   |   |   |   |
|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 |
|---|---|---|---|---|

\*NOTES: (1) If pursuit protection is furnished, then only the number of opposing pursuit remaining after the pursuit vs. pursuit engagement will be considered in the subsequent pursuit vs. observation engagement.

(2) If the observation airplane is able to avoid successive pursuit assaults, such as by flying into clouds or diving to low altitude over friendly troops, full credit should be given for the escape by considering the incident as *no engagement*.

15. O-47 AIRPLANES.—The above table is applicable also to O-47 and O-51 type airplanes, even when flown in formation, due to their lack of defensive fire-power.

16. A-20 AIRPLANES.—Formations of army reconnaissance airplanes have considerably more defensive fire-power than a single airplane, and losses should be assessed according to the table of paragraph 20 below.

## BOMBARDMENT AVIATION

17. ACTION OF AIR UMPIRES.—An air umpire should accompany each mission to determine the manner of performance, weather conditions, and losses to be assessed due to action by opposing pursuit aviation.

18. NUMBER OF MISSIONS.—An air umpire will permit a squadron to perform not more than two flying missions per combat crew per 24 hours.

19. SERVICING.—Squadrons will be required to allow one hour for servicing, if needed, and one additional hour for reloading bombs and ammunition.

20. LOSSES.—*a.* The number of *light* bombardment airplanes and pursuit airplanes lost as a result of air fighting will be assessed as follows:

| <i>Number of<br/>light<br/>bombardment<br/>airplanes</i> | <i>Number<br/>of<br/>pursuit<br/>airplanes</i> | <i>Losses of<br/>light<br/>bombardment<br/>airplanes</i> | <i>Losses<br/>of<br/>pursuit<br/>airplanes</i> |
|--|--|--|--|
|--|--|--|--|

*Day, good visibility, without airplane protection:\**

|           |                 |        |        |
|-----------|-----------------|--------|--------|
| 1.....    | 2.....          | 0..... | 0..... |
| 1.....    | 3.....          | 0..... | 0..... |
| 3.....    | 2.....          | 0..... | 1..... |
| 3.....    | 3-5.....        | 1..... | 1..... |
| 3.....    | 6 or more.....  | 2..... | 2..... |
| 6.....    | 5.....          | 0..... | 1..... |
| 6.....    | 6-9.....        | 1..... | 1..... |
| 6.....    | 10-18.....      | 2..... | 2..... |
| 6.....    | 19-23.....      | 3..... | 3..... |
| 6.....    | 24 or more..... | 4..... | 3..... |
| 9-10..... | 8.....          | 0..... | 1..... |
| 9-10..... | 9-12.....       | 1..... | 2..... |
| 9-10..... | 13-18.....      | 2..... | 2..... |
| 9-10..... | 19-26.....      | 3..... | 3..... |
| 9-10..... | 27 or more..... | 4..... | 4..... |

*Night, but only if the airplane is illuminated by searchlights just prior to or during the pursuit assault:*

|        |                |        |
|--------|----------------|--------|
| 1..... | 1.....         | 1..... |
| 3..... | 2.....         | 1..... |
| 3..... | 3 or more..... | 2..... |

\* If pursuit protection is furnished, then only the number of opposing pursuit remaining after the pursuit vs. pursuit engagement will be considered in the subsequent pursuit vs. light bombardment engagement.

*b.* The number of *medium and heavy* bombardment airplanes and pursuit airplanes lost as a result of air fighting will be assessed as follows:

| <i>Number of<br/>bombardment<br/>airplanes</i> | <i>Number of<br/>pursuit<br/>airplanes</i> | <i>Losses of<br/>bombardment<br/>airplanes</i> | <i>Losses of<br/>pursuit<br/>airplanes</i> |
|--|--|--|--|
|--|--|--|--|

*Day, good visibility, without pursuit protection:\**

|           |                 |        |        |
|-----------|-----------------|--------|--------|
| 1.....    | 3.....          | 0..... | 1..... |
| 1.....    | 4.....          | 1..... | 1..... |
| 3.....    | 5.....          | 0..... | 1..... |
| 3.....    | 6-11.....       | 1..... | 2..... |
| 3.....    | 12 or more..... | 2..... | 3..... |
| 6.....    | 11.....         | 0..... | 1..... |
| 6.....    | 12-17.....      | 1..... | 2..... |
| 6.....    | 18-23.....      | 2..... | 3..... |
| 6.....    | 24 or more..... | 3..... | 4..... |
| 9-10..... | 17.....         | 0..... | 3..... |
| 9-10..... | 18-23.....      | 1..... | 3..... |
| 9-10..... | 24-29.....      | 2..... | 3..... |
| 9-10..... | 30 or more..... | 3..... | 5..... |

*Night, but only if the airplane is illuminated by searchlights just prior to or during the pursuit assault:*

|        |                |        |
|--------|----------------|--------|
| 1..... | 1.....         | 1..... |
| 3..... | 2.....         | 1..... |
| 3..... | 3 or more..... | 2..... |

\* If pursuit protection is furnished, then only the number of opposing pursuit remaining after the pursuit vs. pursuit engagement will be considered in the subsequent pursuit vs. bombardment engagement.

21. ATTACKS AGAINST AIRDROMES. *a.* Losses on an airdrome attacked by one *light* bombardment squadron will be assessed as follows:

*With antiaircraft machine-gun protection:*

|              |                             |
|--------------|-----------------------------|
| <i>Day</i>   | 30-40% of airplanes exposed |
| <i>Night</i> | 20-30% of airplanes exposed |

*Without antiaircraft machine-gun protection:*

|              |                              |
|--------------|------------------------------|
| <i>Day</i>   | 40-50% of airplanes exposed  |
| <i>Night</i> | 20-30% of airplanes exposed. |

If individual airplanes on the ground are protected by revetments, *halve* the above losses.

If the attack is by less than one squadron, reduce the above losses proportionately. No losses will be assessed for an attack by less than three airplanes.

b. Fourteen 100-pound bombs dropped by *medium or heavy* bombardment airplanes will produce losses assessed as follows:

56 cubic yards of earth displaced.

15% of airplanes on the ground damaged.

Airdrome out of commission for one day.

(No airdrome will be out of commission for *more* than one day for any one attack.)

### PURSUIT AVIATION

22. ACTION OF AIR UMPIRES.—An air umpire should accompany each mission to determine the manner of performance, weather conditions, and losses to be assessed due to action by opposing pursuit aviation.

23. NUMBER OF MISSIONS.—An air umpire will permit a combat crew to remain on the alert and perform flying missions for not more than six hours of 24 hours. The number and duration of flying missions are limited only by the actual time of servicing and the missions themselves. Reloading can be accomplished during servicing.

24. LOSSES.—The number of pursuit airplanes lost as a result of *day\** air fighting will be assessed as follows:

| Number of<br>pursuit airplanes |                | Airplanes<br>lost |        |
|--------------------------------|----------------|-------------------|--------|
| Blue                           | Red            | Blue              | Red    |
| 1.....                         | 1.....         | 0.....            | 0..... |
| 1.....                         | 2.....         | 1.....            | 1..... |
| 3.....                         | 3.....         | 1.....            | 1..... |
| 3.....                         | 6.....         | 2.....            | 1..... |
| 3.....                         | 9 or more..... | 3.....            | 2..... |
| 6.....                         | 6.....         | 2.....            | 2..... |
| 6.....                         | 9.....         | 3.....            | 2..... |
| 6.....                         | 12.....        | 5.....            | 3..... |
| 6.....                         | 18.....        | 6.....            | 3..... |
| 9.....                         | 9.....         | 3.....            | 3..... |
| 9.....                         | 12.....        | 4.....            | 3..... |
| 9.....                         | 15.....        | 5.....            | 3..... |
| 9.....                         | 27.....        | 9.....            | 5..... |
| 12.....                        | 12.....        | 4.....            | 4..... |
| 12.....                        | 18.....        | 8.....            | 5..... |
| 1 sqdn.....                    | 1 sqdn.....    | 6.....            | 6..... |
| 1 sqdn.....                    | 2 sqdns.....   | 14.....           | 7..... |
| 1 sqdn.....                    | 3 sqdns.....   | 17.....           | 9..... |

\* Good visibility. Pursuit vs. pursuit at night will not be permitted.

## MISCELLANEOUS

25. OPERATING STRENGTH.—The operating strength of an air unit will be the actual number of airplanes in commission and combat crews available, less losses assessed. Air umpires will exercise continuing supervision in this respect.

26. WEATHER.—Actual weather conditions will govern all operations and umpire decisions.

27. EQUIPMENT.—Equipment and supplies will be actual, except ammunition and bombs. With this exception, air umpires will permit no assumptions.

28. REPORTING GROUND OBJECTIVES.—When practicable, air umpires will report to ground umpires concerned the ground target of an impending air attack, together with the approximate time of attack. The purpose is to avoid assessment of losses by ground umpires for air attacks delivered elsewhere.

29. SMALL-ARMS ANTI-AIRCRAFT FIRE.—Ground umpires do not assess airplane losses for caliber .30 antiaircraft fire (par. 24 e, Umpire Manual). However, air umpires will penalize their units for flying within 1,000 feet of the ground against concentrated small-arms fire. The losses assessed will be: single reconnaissance or observation type airplane, one-fourth airplane per two minutes of exposure; low-altitude bombardment attack, except in the area of the objective, one airplane of every six.

30. AIR FIGHTING.—a. Losses in air fighting will be assessed only as a result of contact and effective assault, not contact alone. Thus losses inflicted by pursuit aviation are based only on airplanes capable of delivering effective fire against opposing airplanes. Air umpires must evaluate the strengths of the opposing forces in air fighting by considering only those airplanes actually involved.

b. An air fight will be limited to five minutes from the first assault. Individual fights should not be discouraged since they afford good training, but such actions must be within the five-minute limit and at all times more than 3,000 feet above the ground. At lower altitudes, a single assault by the attacking airplane, within effective range but not closer than 500 feet, will suffice for umpiring.

GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

353/178

August 6, 1941.

SUBJECT: Changes, GHQ Umpire Manual.

TO : The Commanding Generals,  
All Armies, Air Force Combat Command,  
and The Chief of Armored Force.

1. The following changes in GHQ Umpire Manual are published for the information of all concerned.

a. Paragraph 2a. Identifications: Under *neutrals* delete: "and correspondents."

Add at end of same sub-paragraph:

Personnel                      Motor Vehicles

"Correspondents\*" Green brassard with Green flag.  
white letter "C" for  
correspondent and  
"P" for photograp-  
her.

\*Note: If they are played by participants (subject to capture) they will wear, in addition, the identification prescribed for *Participants* but omitting the green flag on the vehicle."

b. Paragraph 21 b (6): Change to read as follows:

"(6) Mines will be either practice or dummy. Effect may not be assessed for assumed mines. Practice mines—either issue or improvised—will be equipped so as to give off smoke or other visible indication of action when struck (par. 24 k, FM 5-30). Dummy mines will be improvised as described in Training Circular No. 8, War Department, February 12, 1941."

c. Paragraph 21 d.: Substitute for the third item:

"Armored vehicles passing over practice mines—1 vehicle per mine detonated."

"Armored vehicles approaching a field of dummy mines of a density of 1½ mines per yard or greater—delay (par. 25) until passage is effected by finding and removing the

necessary mines actually, unless the field can be avoided entirely. A field of a density of less than 1½ mines per yard is disregarded."

*d. Paragraph 33 b:* Change to read as follows:

"However, units or individuals may be cut off by maneuver, and the action may be such that in reality they would be either captured or destroyed. In this case, umpires should permit prisoners to be taken and handled as such."

FOR THE CHIEF OF STAFF:

CLYDE L. HYSSONG,  
*Lt. Col., A. G. D.,  
Adjutant General.*

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GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

353/178/48

July 15, 1941.  
Asst. Comdt.

SUBJECT: Changes, GHQ Umpire Manual.

TO : The Commanding Generals,  
All Armies, and Chief of the Armored  
Force.

Changes in GHQ Umpire Manual as announced in letter 353/178—F, this headquarters, June 10, 1941, and letter 353/178, this headquarters, June 17, 1941, both, subject as above, are amended to read as follows:

*Paragraph 21 b (3)*

(3) The caliber .50 machine gun of infantry heavy weapons companies and of the special weapons troops of cavalry regiments (H) is effective against light tanks at ranges up to 1000 yards. (These caliber .50 guns are to be replaced by effective antitank guns as the latter become available).

*Paragraph 21 b (5)*

(5) The 75-mm antitank gun is effective against all tanks up to 1000 yards.

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Adjutant General.*

GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

479.1/10-C

August 6, 1941.

SUBJECT: Use of dummy antitank mines in maneuvers.

TO : The Commanding Generals,  
All Armies, and Chief of Armored Force.

1. Reference is made to GHQ letter, August 6, 1941, file 353-178, subject; "Changes, GHQ Umpire Manual."

2. The changes with reference to mines are intended to permit and encourage greater use of mines than is possible with the limited available supply of smoke bottles. Every effort should be made to effect the maximum application of the technique and tactics of antitank mines.

3. A dummy mine field, if of a density of 1½ mines per yard or greater, is treated as an obstacle (par. 25, Umpire Manual). The umpire furnishes the guard a sketch showing the extent of the field. However, the guard does not reveal this information to opposing troops, but merely announces that the obstacle is a dummy mine field.

4. The mine field may be avoided if possible, or a passage through it may be made by removing mines. The guard will enforce delay unless and until these conditions are met.

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GENERAL HEADQUARTERS, U. S. ARMY,  
ARMY WAR COLLEGE  
Washington, D. C.

353/178/21-C  
(8-16-41)

August 16, 1941.

SUBJECT: Changes in GHQ Umpire Manual.

TO : Commanding Generals, all Armies,  
and The Chief of Armored Force.

1. Change paragraph 22 c to read: "Losses of anti-tank guns are assessed by the nearest tank umpire when company umpires are not present. Guns lost are ruled out of action for the day. They may return to action on the following day, in order to avoid undue loss of training."

2. Change paragraph 40 c to read: "He assesses losses of armored vehicles, and of opposing personnel and antitank guns when company umpires are not present."

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GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

353/178

August 6, 1941.

SUBJECT: Changes, GHQ Umpire Manual.

TO : The Commanding Generals,  
All Armies, Air Force Combat Command,  
and The Chief of Armored Force.

1. The following changes in GHQ Umpire Manual are published for the information of all concerned.

*a. Paragraph 8a. Identifications:* Under *neutrals* delete: "and correspondents."

Add at end of same sub-paragraph:

*Personnel*                      *Motor Vehicles*

"Correspondents" Green brassard with Green flag.  
white letter "C" for  
correspondent and  
"P" for photograph-  
er.

*\*Note:* If they are played by participants (subject to capture) they will wear, in addition, the identification prescribed for *Participants* but omitting the green flag on the vehicle."

*b. Paragraph 21 b (6):* Change to read as follows:

"(6) Mines will be either practice or dummy. Effect may not be assessed for assumed mines. Practice mines—either issue or improvised—will be equipped so as to give off smoke or other visible indication of action when struck (par. 24 k, FM 5-30). Dummy mines will be improvised as described in Training Circular No. 8, War Department, February 12, 1941."

*c. Paragraph 21 d.:* Substitute for the third item:

"Armored vehicles passing over practice mines—1 vehicle per mine detonated."

"Armored vehicles approaching a field of dummy mines of a density of 1½ mines per yard or greater—delay (par. 25) until passage is effected by finding and removing the

necessary mines actually, unless the field can be avoided entirely. A field of a density of less than 1½ mines per yard is disregarded."

d. Paragraph 33 b: Change to read as follows:

"However, units or individuals may be cut off by maneuver, and the action may be such that in reality they would be either captured or destroyed. In this case, umpires should permit prisoners to be taken and handled as such."

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GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

353/178/48

July 15, 1941.  
Asst. Comdt.

SUBJECT: Changes, GHQ Umpire Manual.

TO : The Commanding Generals,  
All Armies, and Chief of the Armored  
Force.

Changes in GHQ Umpire Manual as announced in letter 353/178—F, this headquarters, June 10, 1941, and letter 353/178, this headquarters, June 17, 1941, both, subject as above, are amended to read as follows:

*Paragraph 21 b (3)*

(3) The caliber .50 machine gun of infantry heavy weapons companies and of the special weapons troops of cavalry regiments (H) is effective against light tanks at ranges up to 1000 yards. (These caliber .50 guns are to be replaced by effective antitank guns as the latter become available).

*Paragraph 21 b (5)*

(5) The 75-mm antitank gun is effective against all tanks up to 1000 yards.

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Adjutant General.



GENERAL HEADQUARTERS, U. S. ARMY  
ARMY WAR COLLEGE  
Washington, D. C.

479.1/10-C

August 6, 1941.

SUBJECT: Use of dummy antitank mines in maneuvers.

TO : The Commanding Generals,  
All Armies, and Chief of Armored Force.

1. Reference is made to GHQ letter, August 6, 1941, file 353-178, subject; "Changes, GHQ Umpire Manual."

2. The changes with reference to mines are intended to permit and encourage greater use of mines than is possible with the limited available supply of smoke bottles. Every effort should be made to effect the maximum application of the technique and tactics of antitank mines.

3. A dummy mine field, if of a density of  $1\frac{1}{2}$  mines per yard or greater, is treated as an obstacle (par. 25, Umpire Manual). The umpire furnishes the guard a sketch showing the extent of the field. However, the guard does not reveal this information to opposing troops, but merely announces that the obstacle is a dummy mine field.

4. The mine field may be avoided if possible, or a passage through it may be made by removing mines. The guard will enforce delay unless and until these conditions are met.

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GENERAL HEADQUARTERS, U. S. ARMY,  
ARMY WAR COLLEGE  
Washington, D. C.

353/178, 21-C

(8-16-41)

August 16, 1941.

SUBJECT: Changes in GHQ Umpire Manual.

TO : Commanding Generals, all Armies,  
and The Chief of Armored Force.

1. *Change paragraph 22 c to read:* "Losses of anti-tank guns are assessed by the nearest tank umpire when company umpires are not present. Guns lost are ruled out of action for the day. They may return to action on the following day, in order to avoid undue loss of training."

2. *Change paragraph 40 c to read:* "He assesses losses of armored vehicles, and of opposing personnel and antitank guns when company umpires are not present."

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Washington, D. C.

353/178/21-C  
(8-16-41)

*August 16, 1941.*

SUBJECT: Changes in GHQ Umpire Manual.  
TO : Commanding Generals, all Armies,  
and The Chief of Armored Force.

1. *Change paragraph 22 c to read:* "Losses of antitank guns are assessed by the nearest tank umpire when company umpires are not present. Guns lost are ruled out of action for the day. They may return to action on the following day, in order to avoid undue loss of training."

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