DEPARTMENT OF TACTICS
UNITED STATES ARMY AVIATION SCHOOL
Fort Rucker, Alabama

January 1969
File No. 5/6/22/69/70/71-580-2
5/6/22/69/70/71-581-1
5/6/22/69/70/71-582-2
5/6/22/69/70/71-583-1
5/6/22/69/70/71-584-3
5/6/22/69/70/71-586-3

CHAPTER 3

STUDENT OUTLINE

INTRODUCTION TO THE CONDUCT OF AERIAL ADJUSTMENT OF ARTILLERY FIRE

Period One

1. Field artillery gunnery team.

   a. Observer.

   b. Fire direction center. F.D.C. transforms the observer's call and converts it to grids ~~and~~ for artillery or usable gun data.

   c. Gun section.

2. Mission briefing information.

a. Tactical situation.

(1) where the friendlies are and what they intend to do

(2) enemy location and suspected movements

(3) automatic weapon location

b. Mission.

(1) route recon

(2) area surveillance

c. Locations.

(1) gives you the registration points to get target references.

(2) registration points

(3) target numbers

target codes

d. Communications. SOI

know who you are talking to.

e. Miscellaneous.

any helpful information of the mission

3. Flight techniques.

led patterns

figure 8 pattern

a. Flightpath. fly the path that gives you the best observation range and clearance of the.

b. Altitude. ~~above 1500 for small~~ fly high the best altitude (2,200 may be good)

4. Target acquisition.

a. Detection.

b. Analysis.

5. Location of target.

a. Methods of locating targets.

(1) Grid

(2) known points

(3) know point right

right 950
drop 1100

b. Spotting line.

(1) an imaginary line of known direction gun-target line - line stuck down the muzzle of the howitzer to the target. (G-T)

(2) line of known direction - coordinate before flight.

(3) convenient spotting line. this is picked out after flight

6. Projectile and fuze terminal effects.

a. Type projectile and effects.

(1) HE blast + fragmentation heat, explosive

(2) WP. white phosphorus. burn + mark targets

(3) smoke round - locate an area and ~~to~~ ~~de~~ cover an area.

(4) illuminating round, lasts 1 min.

(5) propaganda round

b. Type fuze and effects.

(1) quick fuse

(2) CP. concrete piercing hard alloy and 5/100 second delay

(3) T I & VT best for targets in open.
variable time - gives an atomatic burst above ground. only made with H E round.

(4) Delay fuse 5/100 seconds

(5) quick + Delay close range employ with the HE

c. Criteria for selection.

7. Dispersion.

a. Definition.

b. Factors causing dispersion.

(1) condition of the bore, and heat of barrel.

(2) the carriage less base fittings and the mounting.

(3) weather + wind.

Period Two

1. Artillery communications.

a. Short-phrase readback. always present.

b. Transmission of numbers. digit by digit except by every hundred or thousand

ammunition HE quick is normal
Distribution Lagg W is normal sheaf
liner sheaf — liner
coverage sheaf

2. Call-for-fire.

a. Definition.

b. Elements.

(1) observers identification — Big Boy 20

(2) warning order — FIRE MISSION

(3) location of target — GRID or known PT or known point adjust.

(4) Description of target — 40 ASSES BROWN STRINGS allowed

(5) Method of engagement

(a) area fire is normal type fire

(b) precision (registration, or Destruct

(c) Danger - troops within 1000 - 600 mtrs

(d) Danger close - troops within 600 meters

(6) Trajectory

(a) low angle is normal (gets max range

(b) high angle (mtns accurate)

c. Correction of errors. 1. adjust fire
2. fire for effect
3 at my command (they tell you travel
4. cannot observe

3. Call-for-fire in correct sequence.

4. Message to observer.

a. Battery to fire — 4 battleships 6 guns in each.

b. adjusting Battery

c. number of Rounds.

d. target number or Name to the new target

e.

5. Subsequent corrections.

a. When used.

b. Elements.

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(9)

(10)

c. Correction of errors.

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STUDENT OUTLINE

CONDUCT OF PRECISION FIRE

1. Conduct of precision fire.

a. Types of missions.

(1) registration to obtain adjustment data

(2) Destruction small, point type, immobile target

b. Adjustment procedures.

(1) When adjustment is necessary.

* always adj. fire in precision mission

(2) Adjusting point. in the previous mission is the target

(a) Registration. 1 gun, 1 round at a time for adjustment phase

(b) Destruction.

(3) Number of pieces during adjustment.

(4) Adjustment of deviation.

(a) nearest 10 meters

(b)

(5) Adjustment of range.

(a) nearest 50 meters

(b)

c. Fire-for-effect procedures.

(1) General. when you give a 50 meter correction

(2) Number of weapons in FFE. when you hit the target

(3) When to enter FFE.

(a) when it is within 1 burst with which is 80 mtr.

(b)

(c)

(4) Fire-for-effect procedures in a registration mission.

(a) Spottings for deviation. impact portion
time portion

(b) Spottings for range.

(c) Spottings for time registration. call sign and
gage on air.

(d) Termination of mission. fire direction
center FDC

(5) Fire-for-effect procedures in a destruction mission.

(a) Spottings. same way, but ends with
destruction of target

(b) Termination of mission. by the spotter

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STUDENT OUTLINE

CONDUCT OF AREA FIRE

1. Characteristics of area fire.

   a. Definition. speed accuracy and volume

   b. Comparison to precision fire.

   (1) radio procedure — same

   (2) call for fire — same

   (3) adjustment — same

   (4) fire for effect 1. many more than one gun firing
   2. continue to send corrections

   (5) termination of mission - observer.

   (6) nature of target - not a stationary target

2. Adjustment procedure of area fire missions.

   a. When to adjust. when the data is not accurate enough to hit the target

b. Adjusting point. centre of the area

c. Number of pieces. 2 rounds and 2 guns to adj.

d. Adjustment of deviation.

e. Adjustment of range.

3. Fire-for-effect.

a. Rules for entering fire-for-effect.

(1)

(2)

(a)

(b) obtaining range correct, splitting a 100 yds. bracket.

(c) Bracket in range

(d) Bracket in deviation

(e) Bracket in range, slightly off in deviation

One round into the adjusting point

both rounds 40 yards side of adjusting point closest rounds within 30 yards.

b. Fire-for-effect without adjustment.

(1) with a surveyed location

(2) recently fixed location (within 3 hours)

(3) small accurate shift from a surveyed and previous target or prominent terrain feature.

(4) target on a prominent terrain feature,

(5) large target area

4. Surveillance of fire-for-effect.

a. fire centered and sufficient endurance

b. repeat – hit but not load enough

c. fire not centered

5. Termination of mission.

a. end of mission

b. report effects observed

6. Area fire with fuze VT.

a. General characteristics.

b. Type of targets. under light cover or in open, people.

c. Effects desired. blast + fragmentation above the ditches

d. How to request ~~fuze~~ VT.

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STUDENT OUTLINE

AERIAL ADJUSTMENT OF ARTILLERY IN SPECIAL SITUATIONS

Period One.

1. Target characteristics.

   a.

   b.

   c.

   d.

2. Deployment of artillery.

   a. ARVN (Army Republic of Vietnam) artillery.

      (1)

      (2)

      (3)

   b. US artillery.

      (1)

      (2)

3. Call-for-fire in special situations.

a. General.

b. Mark center of sector technique.

(1) Location of target.

(a)

(b)

(2) Method of engagement.

(a)

(b)

(3) Subsequent corrections.

c. Ranging rounds technique.

(1) Range spread.

(a)

(b)

(2) Location of target.

(3) Method of engagement.

(a)

(b)

(4) Adjustment procedure.

(5) Subsequent corrections.

4. Message to observer.

a. the direction of gun target line

b. 400 meter guide

12
5
17
21
21
17
18

5. Subsequent corrections.

a.

b.

6. Methods of attacking targets in special situations.

a. Ground-air observer technique.

(1)

(2)

b. Creeping method.

(1) finally elevate close to target
HE QUICK is best. no V.T.

(2) small range changes
request the best Battery.

c. Moving targets.

(1) fire without adjust

(2) ambush ~~registration point~~
use to deceive enemy and
gain element of surprise.

NOTES

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CHAPTER 4

WORKBOOK

1. AERIAL ADJUSTMENT OF ARTILLERY WORKSHEETS

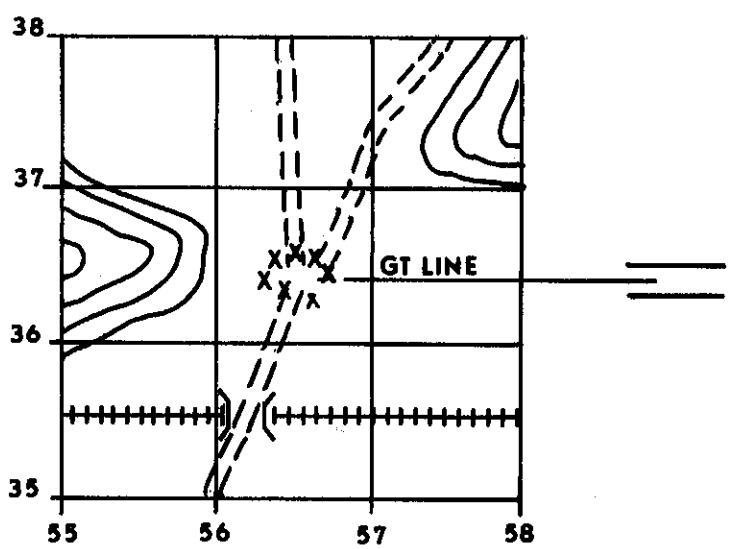
One of the basic requirements for an Army aviator is to possess the ability to adjust artillery fire. You, as an aviator, must be able to fulfill this requirement.

There are definite procedures to be followed in calling for and adjusting artillery. You must commit these procedures to memory.

The following exercises are presented to illustrate certain basic fundamentals, such as target location, call-for-fire, and subsequent corrections and adjustment procedures. Your ability to work these exercises without error will enhance your effectiveness as an Army aviator and serve as a review of artillery subjects.

Proper communication procedures are to be utilized. An example mission showing the prowords and their use is shown.

EXAMPLE MISSION:



EXAMPLE MISSION:

You have located an eight-man patrol. What is your call-for-fire to fire upon this target? Use grid coordinates for target location. Answer: "Big Boy 20, this is Big Boy 81, fire mission, over." "81 grid 565-364, eight-man patrol. VT in effect, adjust fire, over."

a. Requirement 1. Listed below are the elements of a call-for-fire that are out of sequence. Arrange the elements in the proper sequence.

(1) Fifteen trucks in truck park.

(2) Fire mission, over.

(3) Big Boy 20, this is Big Boy 81.

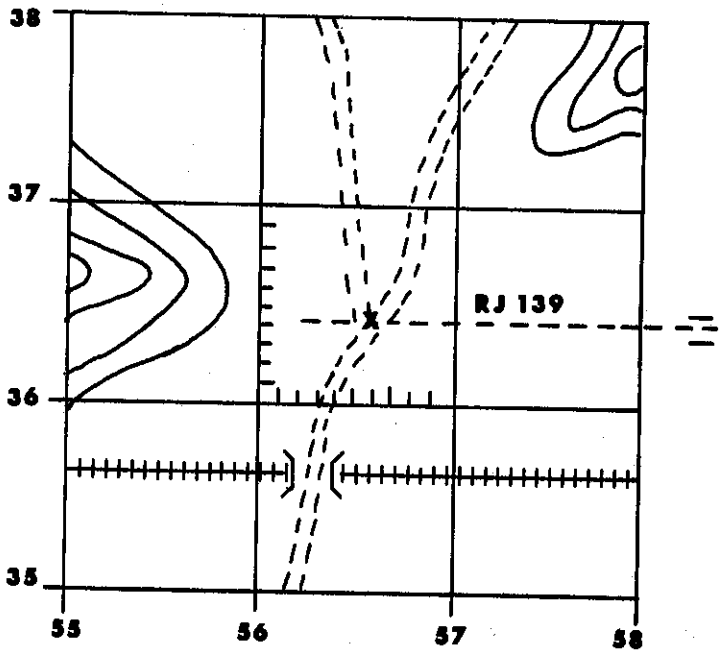
(4) HE and WP in effect.

(5) Adjust fire, over.

(6) 81 from target AB 702, right 150, add 700.

Answer: _____.

b. Requirement 2. You and the FDC have selected RJ 139, a surveyed location, as registration point one. (See sketch.) What is your call-for-fire to register on RJ 139? (Use G-T line.)



Answer: _____.

ELEMENT	EXAMPLE
CALL FOR FIRE	
1. Observer identification.	1. Big Boy 20 this is Big Boy 81.
2. Warning order. (Volume of Fire)	2. Fire mission.
3. Location of target. (Spotting Line)	3. Grid BS823591.
4. Description of target.	4. Stalled gas truck.
*5. Method of engagement	5.
a. Type of adjustment. (Danger, Danger close)	Destruction.
b. Trajectory. LOW	High angle.
c. Ammunition. HE QUICK	
d. Distribution of fire. NORMAL	
6. Method of fire and control.	6. Adjust fire.

* Nonmandatory: If omitted you get area fire, low angle, shell HE, fuze quick, and a normal sheaf.

SUBSEQUENT CORRECTIONS**	
1. Spotting line.	1. Spotting line ALPHA.
2. Trajectory.	2. High angle.
3. Method of fire.	3. Battery right.
4. Distribution.	4. Converge.
5. Shell.	5. Shell HE and WP.
6. Fuze.	6. VT.
7. Deviation.	7. Right 80.
8. Range.	8. Add 50.
9. Height of burst.	9. Up 20.
10. Control.	10. At my command, fire for effect.

**Elements not pertinent to subsequent corrections may be omitted.

ARTILLERY PROWORDS

Grid Indicates the numbers to follow are grid coordinates.

Spotting Line Indicates the line specified will be used as a bases for making spottings and corrections.

High-Angle Requested when a target is so masked that low-angle fire cannot hit it.

Danger Indicates friendly troops are 600 to 1500 meters from the target.

Danger Close Indicates friendly troops are within 600 meters of the target.

Deep Indicates friendly troops are more than 1500 meters from the target.

Destruction Requested when fire on a small, point type, immobile, material target is desired.

Adjust Fire Indicates the observer is prepared to adjust fire onto the target.

Fire for Effect Indicates the artillery unit has sufficient data to place accurate fire on the target.

At My Command ("Adjust Fire" or "Fire for Effect") Indicates the observer will send the command "Fire" to control the exact time for delivery of fire.

Correction Indicates an error in data has been transmitted and that corrected data will follow.

Check Fire Indicates a temporary halt of firing is desired ("Cancel Check Fire" used to resume firing).

Shot Indicates the round(s) have been fired.

Rounds Complete Indicates all rounds to be fired have been fired.

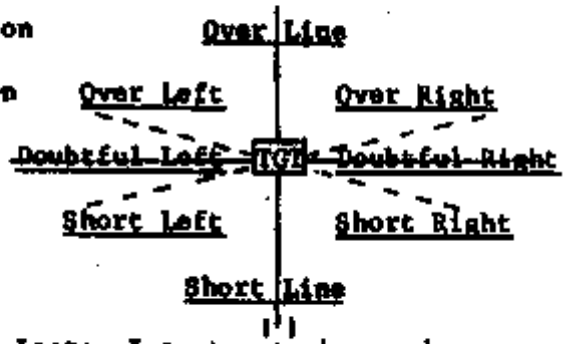
Splash Indicates round(s) will impact in five (5) seconds.

Left (Right) 10X Indicates a shift perpendicular to the spotting line is desired (deflection change).

Add (Drop) 50X Indicates a shift parallel to the spotting line is desired (range change).

Repeat Request to have same number of rounds fired with the same method of fire as was just observed.

Spottings Determination of where a round landed in relation to the target and spotting line being used. The twelve possible spottings are shown at right:



Lost: Impact not observed.

Air: Round exploded before impact.

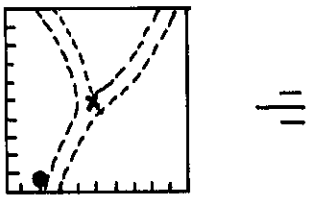
Graze: Round exploded on impact.

c. Requirement 3. The following diagrams show the rounds in the adjustment and fire-for-effect phase. Give your spottings and subsequent corrections.

ADJUSTMENT PHASE

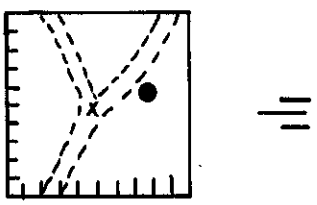
Correction: _____.

ROUND NO. 1



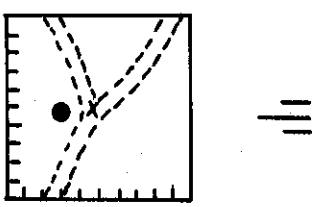
Correction: _____.

ROUND NO. 2



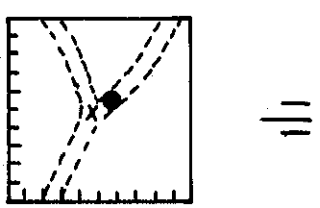
Correction: _____.

ROUND NO. 3



Correction: _____.

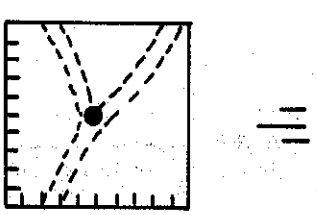
ROUND NO. 4



FIRE-FOR-EFFECT PHASE

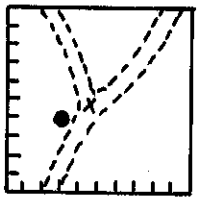
Spotting: _____.

ROUND NO. 1



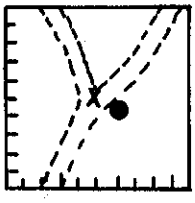
Spotting: _____.

ROUND NO. 2



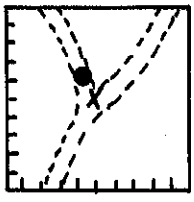
Spotting: _____.

ROUND NO. 3



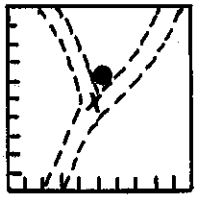
Spotting: _____.

ROUND NO. 4



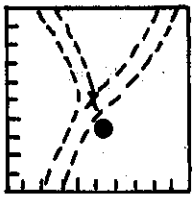
Spotting: _____.

ROUND NO. 5



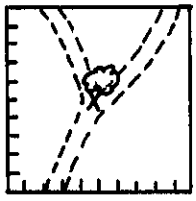
Spotting: _____.

ROUND NO. 6

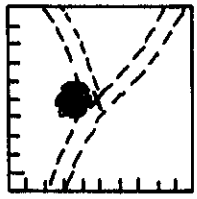


d. Requirement 4. The FDC transmits,"20, observe time registration, over." Give the proper response for the following rounds: (Black burst indicates burst on impact; white burst indicates burst prior to impact.)

Spotting: _____. ROUND NO. 1

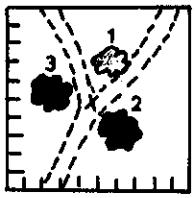


Spotting: _____. ROUND NO. 2



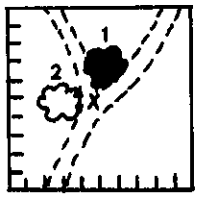
e. Requirement 5. The FDC transmits, "20, observe three rounds, over." Give the proper response to the following rounds:

Spotting: _____.



f. Requirement 6. The FDC transmits, "20, observe two rounds, over." Give the proper response to the following rounds:

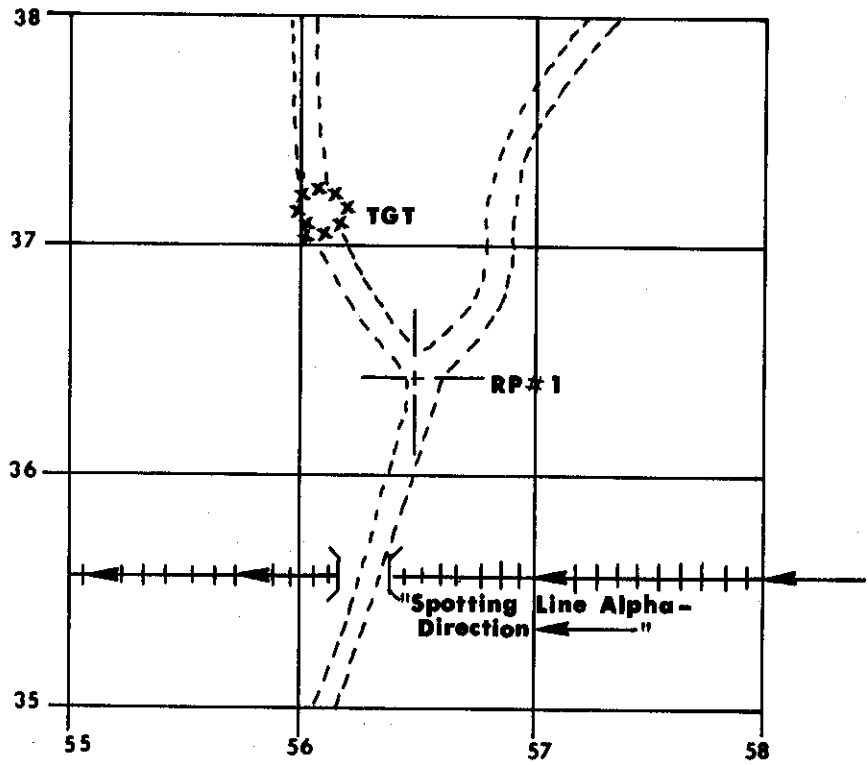
Spotting: _____.



g. Requirement 7. Who will terminate the preceding mission?

Answer: _____.

h. Requirement 8. You have located 20 men laying mines. What is the proper call-for-fire to fire on this target? Use a shift from RP 1 and utilize spotting line Alpha. Correct radio procedure will be utilized.



i. Requirement 9. The FDC transmits, "20, battalion, bravo, one round, target No. AB 702, over." Give the proper response to this transmission and answer the questions below:

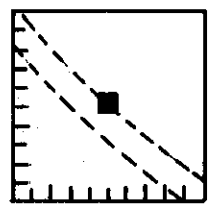
(1) What battery will be fired during the adjustment? _____.

(2) What size unit will fire-for-effect and how many rounds will each weapon in that unit fire? _____

_____.

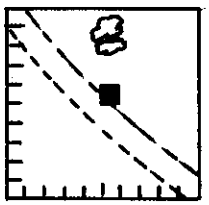
j. Requirement 10. The following illustrations indicate the rounds during adjustment for the mission in requirement 8. Give your corrections for each round. Your adjusting point is indicated by the black square. (Use spotting line Alpha.)

Correction: _____. FIRST ROUNDS



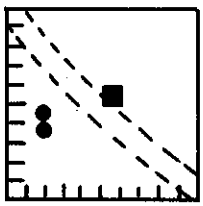
Correction: _____.

SECOND ROUNDS



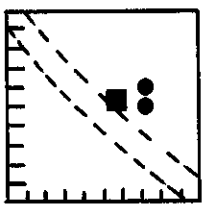
Correction: _____.

THIRD ROUNDS



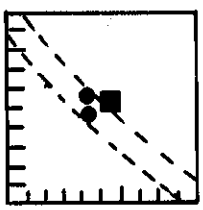
Correction: _____.

FOURTH ROUNDS



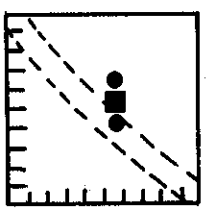
Correction: _____.

FIFTH ROUNDS



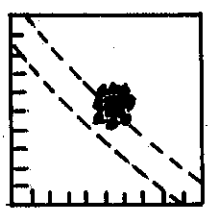
Correction: _____.

SIXTH ROUNDS



Correction: _____.

SEVENTH ROUNDS



k. Requirement 11. You have observed a machinegun firing from a heavily fortified bunker.

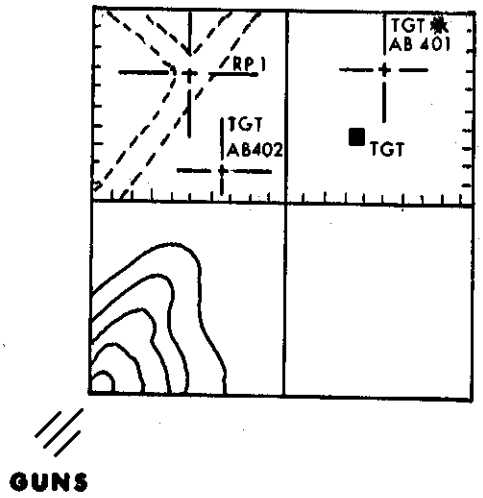
(1) What type mission will you fire upon this target? _____ _____.

(2) How many weapons will you fire during the adjustment? During fire-for-effect?

(a) _____.

(b) _____.

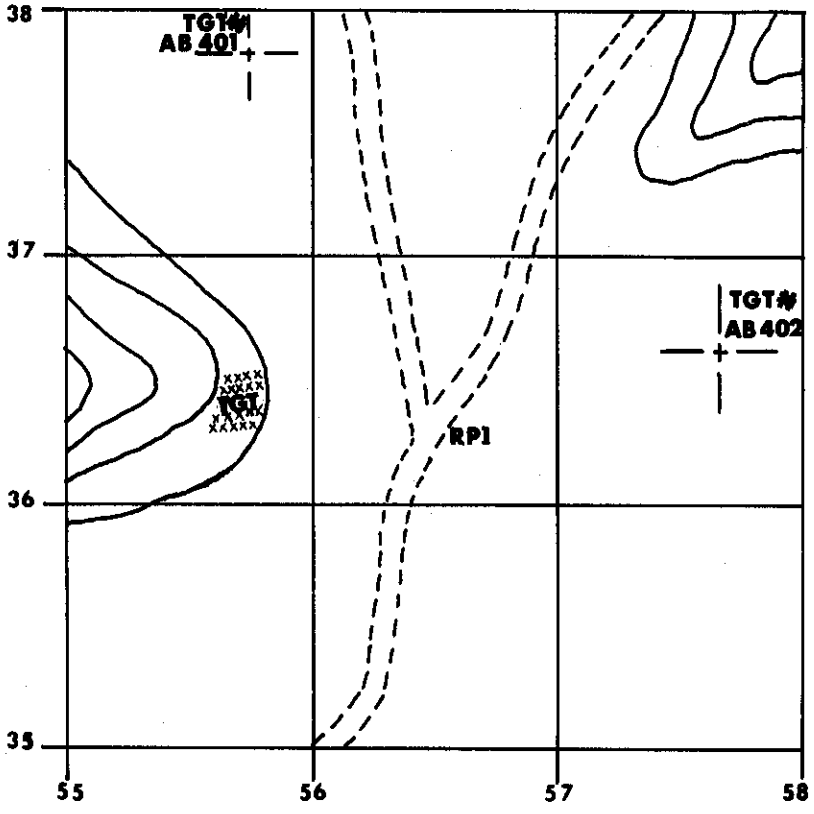
(3) What is your call-for-fire to bring fire upon this target? Use a shift from a known point and the G-T line.



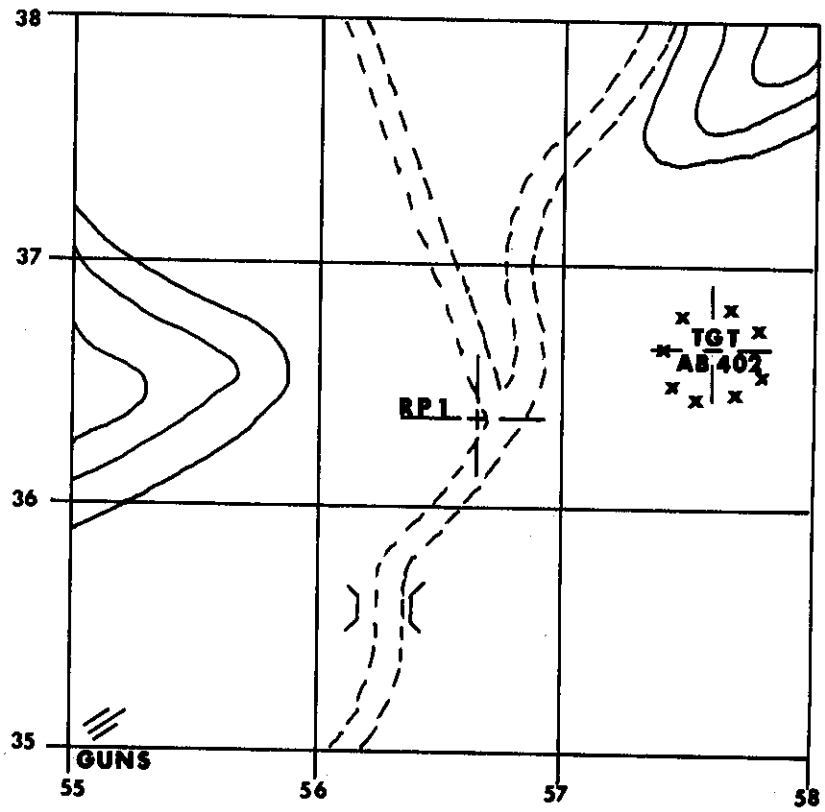
1. Requirement 12. You have observed a company of infantry "digging in." What is your call-for-fire to bring fire onto this target? Use a convenient spotting line and shift from a known point. _____

_____

_____



m. Requirement 13. You observe an eight-man survey party located within a wooded area which was recently fired upon (TGT AB 402). What is your call-for-fire to bring fire onto this target?



Answer: _____

_____

_____

2. SOLUTION AND EXPLANATION OF AERIAL ADJUSTMENT OF ARTILLERY EXERCISES

a. Requirement 1.

Solution: "Big Boy 20, this is Big Boy 81, fire mission, over"; "81, from target AB 702, right 150, add 700, 15 trucks in truck park, HE and WP in effect, adjust fire, over."

Explanation: Elements of a call-for-fire or subsequent corrections must be transmitted in sequence. Firing upon a target with artillery requires close teamwork between the observer, the fire direction center, and the firing battery. All members of this team are trained to utilize certain standard operating procedures. The call-for-fire and subsequent corrections are standard operating procedures and must be committed to memory. If an element is transmitted out of sequence, confusion is created and the effectiveness of fires is seriously affected.

b. Requirement 2.

Solution: "Big Boy 20, this is Big Boy 81, fire mission, over"; "81, registration point one, registration, adjust fire, over."

Explanation: Registration points are selected points that are usually permanent and surveyed. In this particular mission, you and the fire direction center both know where RJ 139 is located. The fire direction center has RJ 139 plotted on their firing charts with surveyed coordinates. You have registration point one plotted on your map and are observing it. In the target location portion of your call-for-fire, there is no need to transmit coordinates since the FDC already has them. Registration point one suffices for both location and description of the target. Registration is transmitted in the type of adjustment portion to tell FDC you are ready to register on RJ 139 and that this is a precision mission.

c. Requirement 3.

Solution: Adjustment phase.

ROUND NO. 1

Correction: "81, R 400, drop 400, over (establish bracket)."

ROUND NO. 2

Correction: "81, L 100, add 200, over."

ROUND NO. 3

Correction: "81, R 20, drop 100, over."

ROUND NO. 4

Correction: "81, L 50, +50, FFE, over."

Explanation: Adjustment phase.

One gun is used during adjustment in all precision missions. The first round in adjustment is spotted as over, 450 left. The deviation correction is to bring the burst on line and then establish a range bracket. A range charge of drop 400 meters was adequate to insure a round short of the target.

This range is then successively split until a 100-meter bracket is split and fire-for-effect can be entered. All deviation corrections are made to the nearest 10 meters.

Solution: Fire-for-effect phase.

ROUND NO. 1 Spotting: "81, target."

ROUND NO. 2 Spotting: "81, over, line."

ROUND NO. 3 Spotting: "81, short, line."

ROUND NO. 4 Spotting: "81, over, right."

ROUND NO. 5 Spotting: "81, doubtful, right."

ROUND NO. 6 Spotting: "81, short, left."

Explanation: Fire-for-effect phase.

During the fire-for-effect phase of a precision mission, only spottings are transmitted to the FDC. The radio proword (over) is omitted once fire-for-effect is entered. The proword is not used so that transmissions such as "short, left (over)" will be eliminated, thus doing away with any confusion that could result.

d. Requirement 4.

Solution:

ROUND NO. 1 Spotting: "81, air."

ROUND NO. 2 Spotting: "81, graze."

Explanation: Only two spottings are possible in the time portion of a registration. Spottings of "air" or "graze" are used. The fire-for-effect radio procedures apply.

e. Requirement 5.

Solution: "81, graze, graze, graze."

Explanation: When more than one round is fired, each burst is spotted individually. After all rounds are observed, transmit spottings in sequence observed. In this case, "81, air, graze, graze."

f. Requirement 6.

Solution: "81, graze, air."

Explanation: The same as requirement 5.

g. Requirement 7.

Solution: The fire direction center.

Explanation: The object of a registration mission to determine corrected data to be used in subsequent firing. The observer adjusts fire onto the registration point to accomplish this. The FDC determines when they have sufficient firing data and will control the termination of all registrations. Another type of precision mission is the destruction mission. This mission is conducted to destroy point-type targets through the use of precision-fire techniques. The observer is the only one in a position to determine when the target has been destroyed or neutralized and will terminate this type precision mission.

h. Requirement 8.

Solution: "Big Boy 20, this is Big Boy 81, fire mission, over": "81, from registration point one, spotting line Alpha - right 750, add 400, 20 men laying mines, VT in effect, adjust fire, over."

Explanation: This is an area-type mission. The primary difference between an area mission and a precision mission is the nature of target. The target in this mission is a relatively dispersed target and is mobile as opposed to a precision target that is small and immobile. The method of target location employed in this mission was a shift from a known point. A line of known direction was used as a spotting line. This line (a railroad track) was selected prior to flight and given the code name "Alpha." Line "Alpha" is employed by the FDC to insure that they are "looking" at the target from the same direction you are. You, as an observer, mentally superimpose line "Alpha" over the registration point and place yourself along this line looking at RP 1 in the previously arranged direction.

i. Requirement 9.

Solution: "81, battalion, bravo, one round, target No. AB 702, out."

(1) Bravo battery.

(2) A battalion will fire in effect and each weapon will fire one round.

Explanation: A "message to observer" is transmitted to the observer by the FDC. This message consists normally of four major elements - battery(ies) to fire-for-effect, adjusting battery, number of rounds from each weapon in fire-for-effect, and target number. These are the elements of information the observer needs to know to properly conduct this fire mission. The FDC can transmit any additional information, and any elements which are different than those requested in the call-for-fire. EXAMPLE: Fuze time rather than fuze VT.

j. Requirement 10.

Solution:

FIRST ROUNDS

Correction: "81, lost, WP, repeat, over."

SECOND ROUNDS

Correction: "81, HE, left 350, over."

THIRD ROUNDS

Correction: "81, right 100, drop 400, over."

FOURTH ROUNDS

Correction: "81, add 200, over."

FIFTH ROUNDS

Correction: "81, drop 100, over."

SIXTH ROUNDS

Correction: "81, fire-for-effect, over."

SEVENTH ROUNDS

Correction: "End of mission, estimate 20 casualties, over."

Explanation: Area-type fire is characterized by speed and volume of fire. It will be employed by the aerial observer against the majority of targets in a combat situation. An Army aviator must have a thorough knowledge of its use and techniques of employment. The first rounds in this requirement is spotted as "lost." For some reason, these rounds were unobserved by you. This can easily occur if the rounds should impact in a defilade position. There are two courses of action that can be taken in this situation. The best course of action is to request shell white phosphorus. This will readily mark the location of the impact point and adjustment can be made. However, do not neglect to change back to shell HE in your subsequent correction. The other course of action has certain disadvantages and should only be used as a secondary choice. A bold shift can be made to move this "lost round" out into an open area where it may be observed. A spotting of "lost over or short" must be made in this case, and this is not always possible. The white phosphorus rounds in rounds No. 2 locate the impact point. These rounds are located within the doubtful zone and are shifted for deviation with no range change. Shell HE is requested at this point. A 400-meter range bracket is established and is successively split. Rounds No. 6 bracket the target in deviation and fire-for-effect is entered. Rounds No. 7 are a battalion firing for effect,and all bursts are air-bursts since VT fuze is used. The fire-for-effect gives good target coverage; therefore, "end of mission, estimate 20 casualties," is transmitted to FDC. This releases the artillery battery from the mission. A surveillance is transmitted to inform the S2 of damage inflicted on this target.

k. Requirement 11.

Solution:

(1) Destruction.

(2) (a) One.

(b) One.

(3) "Big Boy 20, this is Big Boy 81, fire mission, over"; "81, from target No. AB 401, R 150, drop 400, machinegun firing from heavily fortified bunker, destruction, delay, adjust fire, over."

Explanation:

The target in this mission is hardened point-type target and requires precision fire techniques to destroy it. A registration mission is fired to determine corrected data and not destroy targets. A destruction mission must be fired to destroy this target. Fuze delay is requested due to the fortified nature of the target.

One of the characteristics of a precision mission is that one gun is used in adjustment and in fire-for-effect.

When a shift from a known point is to be used to locate a target and a number of known points are available, use the known point closest to the target if at all possible. Target No. AB 401 is closest to the bunker in this mission and should be used. A small shift to a target is much better because it keeps errors in judgment of range and deviation to a minimum.

l. Requirement 12.

Solution: "Big Boy 20, this is Big Boy 81, fire mission, over." "81, from registration point one, spotting line is road from grid 564363 to grid 562373, L 800, add 250, company of infantry digging in, VT, adjust fire, over."

Explanation: The road extending from RP 1 to the north was used as a convenient spotting line. It is readily identifiable on the ground and on a map. The road is relatively straight and a direction can be easily determined from it. The item of primary importance when transmitting the location of a convenient spotting line is to insure the FDC knows what direction the line is extended. This is accomplished by using the words "from" and "to" when transmitting the coordinates.

m. Requirement 13.

Solution: "Big Boy 20, this is Big Boy 81, fire mission, over"; "81, target AB 402, eight-man survey party in wooded area, quick and delay, fire-for-effect, over."

Explanation: The ability to fire upon a target without adjustment, greatly increases the effectiveness of artillery. There are five instances when surprise fires can be delivered upon a target—

(1) Surveyed location.

(2) Recently-fired-upon location.

(3) Small accurate shift from a known point (RP, etc.).

(4) Prominent terrain feature.

(5) Large target area.

Surprise fire was utilized in this requirement. The eight-man survey party is located at a recently fired upon location.

DEPARTMENT OF TACTICS
UNITED STATES ARMY AVIATION SCHOOL
Fort Rucker, Alabama

January 1969
File No. 5/6/22/69/70/71-580-2
5/6/22/69/70/71-581-1
5/6/22/69/70/71-582-2
5/6/22/69/70/71-583-1
5/6/22/69/70/71-584-3
5/6/22/69/70/61-586-3

CHAPTER 5

GLOSSARY

GLOSSARY

1. ADD: An observer correction indicating an increase in range, along a spotting line, is desired.

2. ADJUST FIRE: A method of control given by the observer indicating he can observe and will adjust the initial rounds onto the target.

3. ADJUSTING POINT: A selected point which may be the target, a portion of the target or a well-defined point near the center of the target area that is adjusted on to determine fire-for-effect firing data.

4. ADJUSTMENT: Process of accurately locating a target by fire during an artillery mission.

5. AIR: An observer spotting indicating that a round burst before impact.

6. AREA FIRE: A volume of fire used to attack a target which is capable of movement or a large target area for the purpose of neutralization, harassment, or interdiction.

7. AT MY COMMAND: A command used by the observer to control the exact time of delivery of fire.

8. BATTERY (PLT) RIGHT (LEFT): A method of fire in which weapons are fired from the right (left) one after the other at a predetermined interval (normally 5 seconds).

9. BRACKETING: A method of adjustment in which a bracket is established by obtaining an "over" and "short" along the spotting line and then successively splitting the bracket in half until the rounds are brought onto target.

10. CALL-FOR-FIRE: A request containing data necessary for obtaining fire on a specific target.

11. CANCEL: This word, when coupled with a request, rescinds that request.

12. CANNOT OBSERVE: A method of control indicating the observer will be unable to adjust fire but believes there is sufficient justification to fire on the target without adjustment.

13. CHECK FIRE: A command to temporarily halt firing.

14. CONVERGE (SHEAF): An observer request to have all rounds in effect hit a small target area.

15. CORRECTION: (1) Any change to the initial fire request to facilitate adjustment or bring the rounds closer to the target.

(2) A communication proword indicating that an error in data has been transmitted and that corrected data will follow.

16. DANGER: A term in the initial fire request indicating friendly personnel are within 600 to 1500 meters of the target.

17. DANGER CLOSE: Indicates friendly personnel are within 600 meters of target.

18. DESCRIPTION OF TARGET: A brief accurate explanation of target about to be taken under fire, transmitted by observer and used by FDC to decide volume of fire in effect.

19. DESTRUCTION FIRE: Fire delivered to destroy small, point-type immobile target.

20. DEVIATION: The distance left or right of the spotting line being used and measured perpendicular to the spotting line. (NOTE: Make all corrections towards spotting line to nearest 10 meters.)

21. DISPERSION: The pattern of burst attained by a single weapon when every effort is made to fire all rounds under like conditions.

22. DOUBTFUL: An observer spotting indicating that he was unable to determine the difference in range (i.e. over or short) along the spotting line between a round and the target.

23. DROP: An observer correction indicating a decrease in range along the spotting line is desired.

24. END OF MISSION: A command to terminate firing on a specific target - this command releases the firing unit and FDC to fire on other targets.

25. FIRE: The command given to discharge a weapon(s).

26. FIRE-FOR-EFFECT: A command which causes a predesignated number of pieces to fire at a specified target.

27. FIRE MISSION: Command used to alert the FDC that the message following is a call-for-fire.

28. GRAZE: An observer spotting indicating a time fuze detonated on impact.

29. GRID: A contraction of the term "grid coordinates" used in giving the geographic location of a point.

30. GUN-TARGET LINE (G-T LINE): An imaginary line extending from the guns through the target (see also spotting line).

31. HIGH ANGLE FIRE: Fire delivered at elevations greater than the elevation for maximum range causing the projectile to fall with a steep angle of descent.

32. LEFT (RIGHT): (1) Observer fire correction indicating a lateral shift perpendicular to the spotting line is desired.

(2) Observer spotting indicating a round has impacted to the left (right) of the spotting line.

33. LINE: Observer spotting indicating a round has impacted on the spotting line.

34. LOST: An observer spotting indicating impact of the round was not observed.

35. LOW-ANGLE FIRE: Fire delivered at gun tube angles of elevation of or below the elevation corresponding to maximum range.

36. MARK: A call-for-fire on a specified location to orient the observer or to indicate the location of a target.

37. NUMBER OF ROUNDS: An element of the "message to observer" indicating the number of projectiles per tube to be fired in effect on a specified target.

38. OBSERVER IDENTIFICATION: The first element in the initial call-for-fire to establish communications and identify the observer.

39. OPEN (SHEAF): A request from the observer indicating he wants the rounds in fire-for-effect to be separated by the maximum effective width of burst.

40. OVER: A spotting indicating that a burst occurred beyond the target in relation to the spotting line.

41. RANGE: The horizontal distance from the weapons to the targets.

42. REFERENCE POINT: A prominent and easily located point on the terrain which is used for orientation to locate targets or other points.

43. REGISTRATION: The adjustment of fire on a selected point in the target area to determine data for use in subsequent firing.

44. REGISTRATION POINT: A point, easily identifiable on the map and on the ground, used as an adjusting point in a registration mission.

45. REPEAT: A request indicating the observer desires the same number of rounds be fired again using the same gun data except as indicated in the request.

46. ROUNDS COMPLETE: A report used to indicate that the specified number of rounds have been fired.

47. SHEAF: Term used to denote the desired distribution of the bursts of two or more pieces fired together.

48. SHORT: An observer spotting indicating that the burst occurred "short" of the target in relation to the spotting line.

49. SHOT: A report indicating the gun(s) have been fired.

50. SPLASH: A warning that a round(s) will impact in 5 seconds.

51. SPOTTING: The observer's determination of where a round landed in relation to the target and spotting line being used.

52. SPOTTING LINE: An imaginary line of known direction from which spottings and corrections are made. (G-T line, line of known direction, or a convenient spotting line.)

53. TARGET: (1) A spotting indicating the round hit the adjusting point.

(2) Personnel, material, or a piece of terrain that warrants engagement by fire and that may be numbered for future reference.

EXAMPLE CALL-FOR-FIRE

Element	When Omitted	1. Registration using a surveyed point.	2. Destruction mission using a known point shift.	3. Area fire using grid and G-T line.	4. Area fire using shift from a known point and line of a known direction.	5. Area fire using pre-arranged data.	6. Area fire when no map is available.	7. Area fire when requesting ranging rounds.
Identification of observer.	Never	BIG BOY 20, this is BIG BOY 81.	BIG BOY 20, this is BIG BOY 81.	BIG BOY 20, this is BIG BOY 81.	BIG BOY 20, this is BIG BOY 81.	BIG BOY 20, this is BIG BOY 81.	BIG BOY 20, this is BIG BOY 81.	BIG BOY 20, this is BIG BOY 81.
Warning order.	Never	Fire mission	Fire mission	Fire mission	Fire mission	Fire mission	Fire mission	Fire mission
Location of target (spotting line).	Never When G-T line is used.	Registration point 1.	From registration point 1, left 400, add 550.	Grid BS 684.. 721 165 835	From TGT AB 701, spotting line ALPHA, left 40, add 450.	TGT AB 702.	Mark center of sector.	Grid BS 684.. 721
Description of target.	In a registration mission.	Omitted	Bunker	Estimate 15 personnel under jungle cover.	Estimate 10 personnel in bunkers with light overhead cover.	10 trucks in truck park.	10 personnel in open.	10 trucks in tree line.
Method of engagement.								
1. Type of engagement.	Area fire	Registration	Destruction	Omitted	Omitted	Omitted	Omitted	Omitted
2. Trajectory.	Low angle fire desired.	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
3. Ammunition. a. Type of projectile.	When shell HE is desired.	Omitted	Omitted	Omitted	Omitted	HE and WP in effect.	Marking RD WP, HE and	Omitted
b. Fuze actinn.	When fuse-quick only is desired.	Omitted	Omitted	Quick and delay in effect.	Quick and VT in effect.	Omitted	VT in effect.	QK and DL in effect.
4. Distribution.	When normal sheaf is desired.	Omittad	Omitted	Omitted	Omitted	Omitted	Omitted	Ranging RD's - near RD WP, far RD SMK.
Method of fire and control.	Never	Adjust fire	Adjust fire	Adjust fire	Adjust fire	Fire-for-effect.	Adjust fire	Adjust fire.

NOTE: Classification of fires - DANGER or DANGER CLOSE may be used after type of engagement to indicate location of friendly forces. DANGER 600M - 1500M; DANGER CLOSE 0 - 600M.