NATO STANDARD

ATP-04

ALLIED NAVAL FIRE SUPPORT

Edition (F) Version (2)

OCTOBER 2014

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED TACTICAL PUBLICATION

Published by the
NATO STANDARDIZATION OFFICE (NSO)

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October 2014

PUBLICATION NOTICE

1. ATP-04(F)(2), ALLIED NAVAL FIRE SUPPORT, is effective upon receipt. It supersedes ATP-04(F)(1).

2. Summary of changes.

a. Glossary and LOAA: Updates terminology.

b. Editorial changes throughout.

This notice will assist in providing information to cognizant personnel. It is not accountable.

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

10 October 2014

1. The enclosed Allied Tactical Publication ATP-04, Edition F, Version 2, ALLIED NAVAL FIRE SUPPORT, which has been approved by the nations in the Military Committee Maritime Standardization Board is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 1034.

2. ATP-04, Edition F, Version 2 is effective upon receipt and supersedes ATP-04, Edition F, Version 1 which shall be destroyed in accordance with the local procedure for the destruction of documents.

4. This publication shall be handled in accordance with C-M(2002)60.

Edvardas MAŽEIKIS
Major General, LTUAF
Director, NATO Standardization Office

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATIONS BY NATIONS
2	DNK, USA

NOTE

THE RESERVATIONS LISTED ON THIS PAGE INCLUDE ONLY THOSE THAT WERE RECORDED AT TIME OF PROMULGATION AND MAY NOT BE COMPLETE. REFER TO THE NATO STANDARDIZATION DATABASE FOR THE COMPLETE LIST OF EXISTING RESERVATIONS.

RECORD OF RESERVATIONS

NATION	SPECIFIC RESERVATIONS
DNK	The publication AArtyP-1, Chapter 6, takes precedence on ATP 4(E) Articles 217, 219, 229, and Figures 2-2 and 2-3.
USA	1. Original text, page 2-19, para 0214, sub-para 2 to read “In US doctrine, the Airspace Control Authority establishes airspace coordination areas.” 2. Para 0215 use of the word “effects”. Effects are generated or created to support the achievement of objectives. They are not achieved. This reservation is consistent with US reservations for the use of this terminology in higher level AJPs.

NOTE

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NATO NATIONS
EACH NATION SHOULD SUBSTITUTE ITS OWN
NATIONAL LETTER OF PROMULGATION IF REQUIRED

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REFERENCES

1. Related Documents

1.1 Allied Maritime Tactical Instructions and Procedures, Chapter 11

ATP-1, Volume I

1.2 Doctrine for Amphibious Operations

ATP-8, Volume I

1.3 Tactics, Techniques and Procedures for Amphibious Operations

ATP-8, Volume II

1.4 NATO Above Water Warfare Manual

ATP-31

1.5 Communications Instructions Radiotelegraph Procedures

ACP 124

1.6 Communications Instructions Radiotelegraph Procedures

ACP 125

1.7 NATO Changing Call Sign Book for Maritime Forces

AMSH 1707

1.8 NATO Changing Call Sign Book for Marine Forces

AMSH 1708

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CONVENTIONS USED IN THIS PUBLICATION

CHANGE SYMBOLS

Revised text in changes is indicated by a black vertical line in either margin of the page, like the one printed next to this paragraph. The change symbol indicates added or restated information. A change symbol in the margin adjacent to the chapter number and title indicates a new or completely revised chapter.

WARNINGS, CAUTIONS, AND NOTES

The following definitions apply to warnings, cautions, and notes used in this manual:

WARNING

AN OPERATING PROCEDURE, PRACTICE, OR CONDITION THAT MAY RESULT IN INJURY OR DEATH IF NOT CAREFULLY OBSERVED OR FOLLOWED.

CAUTION

AN OPERATING PROCEDURE, PRACTICE, OR CONDITION THAT MAY RESULT IN DAMAGE TO EQUIPMENT IF NOT CAREFULLY OBSERVED OR FOLLOWED.

NOTE

AN OPERATING PROCEDURE, PRACTICE, OR CONDITION THAT REQUIRES EMPHASIS.

WORDING

Word usage and intended meaning throughout this publication is as follows:

“Shall” indicates the application of a procedure is mandatory.

“Should” indicates the application of a procedure is recommended.

“May” and “need not” indicates the application of a procedure is optional.

“Will” indicates future time. It never indicates any degree of requirement for application of a procedure.

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PREFACE

0001 PURPOSE

This publication provides spotting procedures for NFS and supplementary information regarding the conduct of NFS.

0002 SCOPE

This publication specifies mandatory spotting procedures for NFS in exact detail. These procedures must be thoroughly understood and precisely followed by ships, spotters, and supported units when conducting NFS in order to ensure maximum safety and effectiveness, even when the units involved have not been previously associated or had an opportunity to conduct prior liaison. Annex A provides examples of the specific procedures; remaining annexes provide supplemental information; and the glossary provides precise definitions of naval fire support terms and of other terms associated with NFS.

0003 UNITS OF MEASUREMENT

altitude. Units of measurement are in meters, unless otherwise specified. Meters will be to an accuracy of the nearest 5 meters. (If altitude is specified in feet, it will be to the nearest 20 feet.)

direction. Direction is the line about which the fall of shot is to be spotted. Units of measurement are in mils, measured from grid North unless otherwise specified. True or magnetic North, or degrees, or other units may be used, but the unit must be specified. Mils will be sent to the nearest 10 mils and degrees will be sent to the nearest degree. Cardinal or intercardinal directions may be used (e.g., NORTH NORTHWEST). If cardinal or intercardinal direction is used, the accuracy of spotted rounds may be reduced.

distance. Units of measurement are in meters, unless otherwise specified. Note that nearly all shipboard fire control equipment is calibrated in yards. One yard equals 0.914 meters.

grid location. Units of measurement are in meters; grid location should be given to at least the nearest 100 meters, but may be given to the nearest 10 meters when additional accuracy can be determined and is required.

height of burst. Units of measurement are in meters, unless otherwise specified. HOB is given in increments of 5 meters.

shift. Units of measurement are in meters; shifts are measured as follows:

lateral shift—To the nearest 10 meters.

range shift—To the nearest 100 meters; to the nearest 50 meters when entering FFE for point targets.

vertical shift—To the nearest 5 meters.

summit. Units of measurement are in meters for a ground spotter; they must be in feet when the spotter is airborne.

time. Units of measurement for time are understood to be in seconds, unless otherwise specified (e.g., Prime One, Prime Two, and Prime Three to indicate 15, 30, and 45 seconds marks of any given minute).

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CHAPTER 1 Spotting Procedures

SECTION I—PREFIRING

0101 Request for Support

1. General. When a direct support ship is not allocated, support must be requested as shown below.

2. Originator. When an NFS ship has not been allotted, a request for support may be originated by:

a. Any unit or formation, with or without a spotter.

b. Any spotter.

c. An aircraft that observes a suitable target.

d. The headquarters of the landing force that the naval force is supporting.

3. Passage of Requests. Requests for support are passed to the OTC through his NFS agency. The request will normally come from a ground or air spotter or a landing force unit via the supporting arms coordination agency. The procedure is explained in ATP-8, Volume II.

4. Format of Request. Requests for support must be transmitted in the following format. (Include new or modified target information as available.)

a. Target number, priority, classification.

b. Target location.

c. Target description.

d. Time and duration.

e. Ship/caliber requested.

f. Ordnance type required/requested.

g. Position of friendly troops.

h. Special instructions; e.g., airspace coordination, controlling agency, etc.

5. Allotment Signal. In response to a request for support, the OTC orders allotment of a support ship in the following format:

a. Target number.

b. (Ship's call sign) report to (controlling agency call sign) on (net designator) at (time).

c. For mission to commence at (time).

d. Voice/code.

e. Estimated volume of fire required.

f. Ordnance type(s) required.

g. Allocated time period.

h. Special instructions; e.g., airspace coordination, unobserved fire, beacon information, etc.

6. Communication Procedures. Requests for NFS and ship allotment signals are communicated as described in Chapter 3.

0102 Call for Fire

1. General. A spotter's call for fire is a concise request that contains the information needed by the ship to fire on a target. The spotter transmits the call for fire rapidly, but with sufficient clarity to ensure that the request is understood, recorded, and read back without error by the ship's radio operator. The spotter transmits the call for fire in two parts, with the break after the warning order and target number; each part is read back.

2. Format of Call for Fire. Calls for fire must be transmitted in the following format:

a. Spotter identification.

b. Warning order and target number (Break).

c. Target location:

(1) By grid coordinates:

(a) Grid.

(b) Altitude.

(c) Direction (may be omitted if method of control is not spotter adjust).

(2) By polar plot:

(a) Direction.

(b) Distance.

(c) Vertical shift (up/down).

(3) By a shift from a known reference point or target number:

(a) Target number or reference point.

(b) Direction.

(c) Lateral shift (left/right).

(d) Range shift (add/drop).

(e) Vertical shift (up/down).

(4) By geodetic coordinates:

(a) Latitude and longitude.

(b) Altitude (meters).

(c) Direction (may be omitted if method of control is not "Spotter adjust").

d. Target description.

e. Method of engagement (as appropriate):

(1) Danger close.

(2) Trajectory.

(3) Ammunition.

(4) Armament.

(5) Number of guns.

(6) Number of salvos.

(7) Special instructions.

f. Method of control:

(1) "Fire for effect."

(2) "Spotter adjust."

(3) "Ship adjust."

(4) ("At my command" may be used as a modifier to the three methods of control.)

3. Spotter Identification. This is made in accordance with ACP 124 and 125. The call sign initiates communication between the spotter and the ship and informs any monitoring supporting arms coordinating agency which spotter is calling for fire. The call signs effective for the operation are the ones used.

4. Warning Order and Target Number. "Fire mission" informs the ship that the transmission is a call for fire and clears the net for the transmission. The spotter assigns a target number from those allocated in the operation order. The target number identifies the target for future reference. Target numbers will consist of two letters followed by four numbers (see Article 0218) (i.e., NZ2045). After initial target number assignment for fresh, new, and simultaneous-engagement- of-two-target missions, the last two digits of the target number may be used to differentiate between the targets.

5. Target Location. The spotter transmits information that enables the ship to plot the location of the target. One of the following techniques must be used.

a. Grid Coordinates. The spotter passes as accurate a grid coordinate as possible for the target. The altitude of the target must be given. Direction is included to provide a reference line for subsequent adjustments when required.

-EXAMPLE-

GRID 346729
ALTITUDE 35
DIRECTION 4200
or
GRID 35958876
ALTITUDE 55
DIRECTION 275° MAGNETIC

b. Polar Plot. The spotter locates the target with respect to his own location. The ship must know the spotter's location. The spotter passes the direction to the target, the distance, and the vertical shift. Accurate direction is critical. The vertical shift tells the ship how far the target's location is above (up) or below (down) the spotter's location.

-EXAMPLE-

DIRECTION 2160
DISTANCE 2400
DOWN 40

c. Shift From a Known Point. The ship must know the location and altitude of the known point—a previously fired and recorded target, a planned target, or a reference point selected by the spotter and passed to the ship. To locate the target, the spotter provides the following information:

(1) From (reference point): The spotter identifies the known point.

(2) Direction: A spotting direction is identified along which to apply the elements of the shift.

(3) Lateral shift: How far left or right the target is from the known point along the spotting direction.

(4) Range shift: How much farther (add) or closer (drop) the target is from the known point along the spotting direction.

(5) Vertical shift: How much the target is above (up) or below (down) the altitude of the known point.

-EXAMPLE-

FROM TARGET NUMBER
AN1052
DIRECTION 5800
RIGHT 240
ADD 400
UP 35

d. Geodetic Coordinates. The spotter, using GPS receiver equipment, locates the target by degrees and minutes of latitude and longitude as accurately as possible for the target (North, South, East, and West descriptives are assumed to be understood). The altitude of the target must be given

(in meters). Direction is included for spotter-adjusted fire to provide a reference line for subsequent adjustments when required.

-EXAMPLE-

LATITUDE 3429.433
LONGITUDE 07458.21
ALTITUDE 34
DIRECTION 275° TRUE

6. Target Description. The spotter must accurately describe the target in sufficient detail to provide tactical information to the monitoring supporting arms coordinating agency. The description may include:

a. What the target is (troops, equipment, trucks).

b. What the target is doing (digging in, attacking).

c. The number of elements (50 troops, 5 trucks).

d. The degree of protection (in open, in bunkers).

e. The target's size, shape, and attitude, if significant (e.g., 200 X 500, attitude 2100).

NOTE

FOR TARGET SIZE AND SHAPE, METERS ARE STANDARD AND NEED NOT BE SPECIFIED. FOR TARGET ATTITUDE, MILS GRID ARE STANDARD AND NEED NOT BE SPECIFIED.

7. Method of Engagement. Naval fire support is used primarily for destruction, suppression, or neutralization. This element provides information on the method of engagement and special instructions. When a subelement is not specified, the standard is assumed. Figure 1-1 lists the standard elements of the call for fire.

METHOD OF ENGAGEMENT	
Danger Close:	Not danger close
Trajectory:	Full charge/normal angle
Ammunition:	HE/quick
Armament:	Main
No. of Guns:	One
No. of Salvos:	One
Special Instructions:	None
METHOD OF CONTROL	
Spotter Adjust	

Figure 1-1. Standard Elements of the Call for Fire

a. "Danger Close." The term, "Danger close," is used when fire support is directed close to friendly forces. Refer to paragraph 0212.3 for further details. The spotter reports, "Danger close," followed by a cardinal or intercardinal direction (based on grid North) and distance in meters from the target to the nearest friendly troops.

-EXAMPLE-

DANGER CLOSE SOUTH SOUTH-
EAST 350

(1) First salvo intentions will always be specified by the spotter. The spotter will request either first salvo offset (based on the spotting line or a cardinal or intercardinal direction):

-EXAMPLE-

DANGER CLOSE
SOUTHEAST 350
FIRST SALVO AT ADD 450
or
DANGER CLOSE SOUTH 350
FIRST SALVO AT NORTH 400

(2) Or first salvo at target:

-EXAMPLE-

DANGER CLOSE SOUTH SOUTH-
EAST 350
FIRST SALVO AT TARGET

(3) The responsibility for placement of the first salvo and all subsequent adjustments rests with the spotter and not with the ship. The ship's responsibility is to fire at the target as accurately and as quickly as possible.

b. Trajectory. The following applies to ships capable of firing reduced charge or high angle. The spotter or the ship may require the ship to fire a higher than normal trajectory for targets in defilade, or to increase accuracy on targets without a vertical face; and can also be used to fire over an airspace, etc. This can be accomplished by either requesting "Reduced charge" or "High angle." If this subelement is omitted, the ship fires a normal trajectory.

(1) "Reduced Charge" and "Cancel Reduced Charge." By requesting reduced charge at shorter ranges, the spotter increases the angle of fall of the rounds, which is more effective against targets in defilade. In addition, reduced charge lowers the initial velocity of the projectile. This prevents ripped parachutes on illumination rounds at shorter ranges. If reduced charge becomes necessary during a mission, the ship or spotter specifies a change in trajectory by ordering "Reduced charge." The ship or spotter orders "Cancel reduced charge" when it is no longer required or available.

(2) "High Angle" and "Cancel High Angle." High-angle fire with a full charge is used to engage targets in defilade when extended range or other considerations prevent the use of reduced charge. If a target in defilade must be engaged, and the ship cannot fire reduced charge, the ship or spotter orders "High angle." The ship or spotter orders "Cancel high angle" when it is no longer required.

c. Ammunition. The spotter selects the most appropriate ammunition for the adjustment and FFE phases of the mission. The type of ammunition in each phase is specified by passing the type of ammunition followed by "in adjustment" or "in effect." If the phase is not specified, the ship will fire the specified ammunition during both the adjustment and FFE phases.

(1) Projectile. Shell HE will be used during both the adjustment and FFE phases, if the type of projectile is not specified. If the spotter wants the ship to fire a different type of shell during either phase, he must request it.

-EXAMPLE-

SHELL WP (in adjustment
and effect understood)

(2) Fuze. Unless otherwise specified, the ship will fire fuze quick in both adjustment and FFE, for all projectiles but illumination and armor piercing. When firing shell illumination, the fuze is understood to be time. When firing shell armor piercing, the fuze is understood to be delay.

-EXAMPLE-

FUZE CVT IN EFFECT (fuze
quick in adjustment
understood)

d. Number of Guns. The number of guns requested for adjustment and/or FFE will be assumed to be one gun unless otherwise specified by the spotter in the call for fire. One gun is standard and need not be specified.

e. Number of Salvos. The spotter states the volume of fire he desires when he uses "Fire for effect" as the method of control. If the spotter uses "Spotter adjust," he omits this information from the call for fire, until after he has adjusted rounds onto the target, at which point he will state the number of salvos, prior to FFE.

f. Special Instructions. The spotter informs the ship when he desires the use of specific, nonstandard techniques. Special instructions are provided in Figure 1-2. See also Figure 1-1 for the standard elements of the call for fire.

g. Time on Target. A specific technique of controlling fire is time on target, which can be expressed as a time on a synchronized clock, or be based on an elapsed time or identifiable event.

(1) Synchronized Clock (such as that within a GPS receiver). The synchronized clock uses common time based on either a local or the universal (ZULU) time zone established by the senior headquarters. This technique requires periodic time checks. Once established, the synchronized clock is the preferred technique of coordinating the timing of fires. See Figure 1-2 for an example of this technique.

(2) Elapsed Time. Time on target may be coordinated by specifying a number of minutes and seconds to elapse from a stated countdown reference. Elapsed time is best used when timing the delivery of fires in an immediate or time-critical situation, when a synchronized clock has not been established, or when a synchronized clock's accuracy is doubtful. Elapsed time is expressed in relation to the transmission of a "Hack". The Hack is transmitted by specifying the number of minutes and seconds to elapse before the specified event is to occur (e.g., ordnance impact on target). To avoid confusion, the word, "Hack" is only used in transmission to initiate or acknowledge the Hack. See Figure 1-2 for an example of this technique.

COORDINATED ILLUMINATION	Used to inform the ship that subsequent to adjusting illumination, the spotter will request simultaneous high explosive (HE) fire.
CONTINUOUS ILLUMINATION	Used when rounds are to be fired at such intervals as to maintain uninterrupted illumination of the target area. The observer may state the duration of the illumination to be effective. The ship will determine the interval from the burning time of the projectile in use.
INTERVAL	Used when the spotter desires fire for effect to be fired with a specific time interval between each salvo. **-EXAMPLE-** 10 SALVOS INTERVAL 30 FIRE FOR EFFECT
SUSTAINED FIRE	Used when the spotter desires the ship to spread volume of fire over a specific period of time. **-EXAMPLE-** 20 SALVOS SUSTAINED FIRE 5 MINUTES FIRE FOR EFFECT
TIME ON TARGET (TOT)	Used when the spotter desires the ship to fire so that the initial rounds will impact upon the target at a specified time **-EXAMPLE-** TIME ON TARGET 0859 or TIME ON TARGET 10 (minutes understood but may be stated) PLUS ZERO ZERO (seconds understood but may be stated), STANDBY . . HACK. (Countdown may be included; e.g., STANDBY 5,4,3,2,1, HACK.) Ship reads back TIME ON TARGET 10 PLUS 00 ROGER HACK, OUT to acknowledge time hack. If time hack is not received, ship reads back TIME ON TARGET 10 PLUS 00 NEGATIVE HACK, OVER. Spotter then must initiate another time hack.

Figure 1-2. Spotter's Special Instructions in the Call for Fire

(3) Event. Fires may be timed in relation to a specific, identifiable event (e.g., H-hour).

8. Method of Control. The spotter will end his call for fire by telling the ship the method of control that will be used to conduct the fire mission. "Spotter adjust" is the standard method and may be omitted. When omitted, it is automatically the method of control in effect.

a. "Fire for Effect." The spotter will always strive to achieve "Fire for effect" as soon as possible. Naval gunfire can be used for immediate FFE if the ship has proven to be accurate, or if the target is of the type likely to be damaged without a direct hit.

NOTE

"CANNOT OBSERVE" MAY BE USED TO MODIFY "FIRE FOR EFFECT" WHEN THE SPOTTER DESIRES TO FIRE ON AN INTELLIGENCE OR SUSPECTED TARGET THAT NEITHER HE NOR THE SHIP CAN OBSERVE. THE SPOTTER MUST HAVE SPECIFIED THE NUMBER OF SALVOS TO BE FIRED IN THE METHOD OF ENGAGEMENT.

-EXAMPLE-

10 SALVOS
FIRE FOR EFFECT
CANNOT OBSERVE

b. "Spotter Adjust." The spotter applies this method of control when he feels that he must adjust fire onto the target, due to questionable target location or firing inaccuracy. It may also be ordered by the spotter when he wishes to revert to adjustment at any time during a mission.

c. "Ship Adjust." The spotter may suggest that the ship adjust fire onto the target, when the target is visible to the ship. The ship will provide a normal prefiring report (see Article 0103) before beginning the engagement to assist the spotters in providing these range observations.

NOTE

"AT MY COMMAND" IS A MODIFIER TO THE METHOD OF CONTROL AND MAY BE USED WHEN THE SPOTTER WISHES TO CONTROL THE PRECISE FIRING OF EACH SALVO IN THE "SPOTTER ADJUST," "SHIP ADJUST," AND THE COMMENCEMENT OF FIRING IN "FIRE FOR EFFECT."

SECTION II—OPENING FIRE

0103 Prefiring Report

1. The gunfire support ship makes the following report to the spotter prior to firing upon the target designated in the call for fire. The message consists of the following information.

a. Gun-Target Line. The ship reports the GTL to the spotter, using the same North reference and units as the spotter used in the call for fire. Subsequent changes of 200 mils (10°) will also be reported to the spotter. If the direction is GTL, this tolerance changes to 100 mils (5°) to facilitate more accurate spotting. If the direction in the call for fire was a cardinal or intercardinal direction, a GTL, or if it was omitted, the ship will use mils grid.

-EXAMPLE-

GUN-TARGET LINE 2740
or
GUN-TARGET LINE 170°
MAGNETIC

NOTE

MILS GRID IS THE ASSUMED UNIT OF MEASUREMENT FOR GTL AND MAY BE OMITTED FROM THE REPORT. ALL OTHER UNITS OF MEASUREMENT (I.E., MILS MAGNETIC, DEGREES MAGNETIC, ETC.) WILL BE INCLUDED IN THE REPORT.

b. "Ready." The ship reports "Ready," followed by the time of flight in seconds, when she is ready to fire the first salvo of the mission and is awaiting the spotter's order to fire. The ship transmits "Ready," without the time of flight before subsequent salvos, only:

(1) If "At my command" has been ordered by the spotter and time of flight has not changed by more than 5 seconds.

(2) To end a "Delay" by the ship.

(3) To indicate that a "Check solution" has been accomplished.

c. Time of Flight. The ship will immediately report time of flight when the time of flight changes by more than 5 seconds.

d. "First Salvo at (Point of Aim)." The ship reports this element when the spotter has included "Danger close" in the call for fire. It confirms the point of aim ordered by the spotter.

e. Summit. The ship reports the summit to indicate the highest altitude above mean sea level that the projectile will reach in its flight to the target.

(1) Summit, in feet, always must be reported when the spotter is airborne.

(2) When requested by a ground spotter, summit is reported in meters.

(3) A subsequent change of 300 feet for airborne spotter or 100 meters for ground spotter will be reported to the spotter.

f. Changes. If the ship intends to change any element of the spotter's call for fire, she must report the change to the spotter.

0104 Order to Fire

1. The spotter must give the specific order to fire, when in control, before the first salvo is fired. Thereafter, unless the "At my command" procedure is in force, an adjustment correction, "Repeat," "Fire for effect," or "Cancel check firing" is the executing order to fire.

0105 Reports On Opening Fire

1. The ship transmits the following reports to the spotter every time a salvo is fired, until "Fire for effect," at which time she passes the reports for the first salvo only. These reports are not read back by the spotter.

a. "Shot." "Shot" is transmitted at the moment of firing a salvo.

b. "Splash." "Splash" is transmitted 5 seconds before a salvo is due to detonate. "Splash" is not reported during FFE when two or more ships are conducting a massed- fire mission, during rotation missions, or for star shells after the beginning of the HE adjustment phase of coordinated illumination missions.

SECTION III—FIRING

0106 Firing Reports and Orders

1. Procedure for Initiating Subsequent Corrections. After the initial burst, the spotter transmits corrections until the fire mission is completed. Corrections include appropriate changes in elements of the call for fire previously transmitted and the necessary adjustment corrections for deviation, range, and HOB. On completion of adjustment, it is advisable for the spotter to check the MPI of additional guns to be used in FFE by ordering "(Number) guns, one salvo." Elements may then require further correction. The sequence in which the spotter orders corrections is as follows:

a. Direction of spotting line.

b. "Danger close" or "Cancel danger close."

c. "Trajectory."

d. Ammunition.

e. Deviation.

f. Range.

g. HOB.

h. Number of guns.

i. Number of salvos.

j. Method of control.

NOTE

ANY ELEMENT FOR WHICH A CHANGE OR CORRECTION IS NOT DESIRED IS OMITTED.

2. Procedures for Corrections.

a. Direction of Spotting Line. A change in the direction of the spotting line can be made whenever the spotter wishes, but should be made if his direction changes by 100 mils (5°) or more. The spotter must provide the direction of the spotting line if he had fired for effect immediately using grid coordinates (with the direction omitted) and has subsequently decided to adjust the impact of the rounds.

b. "Danger Close" or "Cancel Danger Close." Ships will not enter into "Danger close" procedures unless specifically requested by the spotter or a coordinating agency. The spotter orders "Cancel danger close," if "Danger close" was included in the call for fire and the target is no longer within the range for "Danger close."

c. Trajectory. The ship or spotter specifies a change in trajectory by ordering "Reduced charge." The ship or spotter orders "Cancel reduced charge" when it is no longer required. If it becomes necessary to engage a target in defilade and the ship cannot use reduced charge, the ship or spotter may order "High angle." The ship or spotter orders "Cancel high angle" when it is no longer required.

d. Ammunition. When the spotter desires to change the type of ammunition, either the projectile or the fuze, he orders the desired change.

e. Deviation. When the round lands left or right of the spotting line, the spotter determines the correction desired to bring the burst onto the spotting line. Deviation corrections are transmitted as "Right/left (amount)" in increments of 10 meters. This element is omitted when there is no correction for deviation.

f. Range. When the round lands short or beyond the target on the spotting line, range corrections are transmitted as "Add/drop (amount)" in increments of 100 meters. When firing for effect, an add or drop of 50 meters can be sent to improve accuracy. This element is omitted when there is no correction for range.

g. Height of Burst. HOB corrections can be made in two contexts—to adjust ground bursts in very steep terrain and to adjust airbursts or illumination height. When adjusting ground bursts in steep terrain, it should be remembered that an up or down correction will have a range effect on the GTL depending on the terrain. The corrections made for airbursts will depend on the terrain and the type of fuze being fired. HOB for illumination will be made in increments/multiples of 50 meters.

h. Number of Guns. When the spotter desires to change the number of guns, either in adjustment or in effect, he orders the desired change.

i. Number of Salvos. When the spotter desires to change the number of salvos, either in adjustment or in effect, he orders the desired change.

j. Method of Control. When the spotter desires to change the method of control, he transmits the desired method of control (see paragraph 0102.8).

3. "Repeat." This is an order to repeat the method of engagement without change to MPI or volume of fire. If a correction to the MPI is required, it prefixes "Repeat."

-EXAMPLE-

ADD 100
REPEAT

NOTE

DURING ADJUSTMENT, "REPEAT" IS UNDERSTOOD AND NOT STATED WHEN THE SPOTTER'S TRANSMISSION INCLUDES DEVIATION, RANGE, OR HOB CORRECTIONS.

4. Other Spotter's Firing Reports and Orders. Other firing reports and orders that a spotter may use during a fire mission are provided as follows.

a. "Check Firing" or "Cancel Check Firing." "Check firing" interrupts firing temporarily, usually for safety reasons. "Cancel check firing" can only be given by the originator of "Check firing." If the mission is "At my command," or if after "Check firing, check solution," the support ship should report "Ready" to the spotter after reporting either "Neglect" or "Solution correct." On the command "Cancel check firing, fire" the ship will fire. When more than one firing ship is on the same radio net, "Check firing" applies to all firing ships until "Cancel check firing" is sent by the originator.

b. "Check Solution." (Always preceded by "Check firing.") "Check solution" requests the ship to check her fire control solution.

(1) It should be used when the spotter observes an obvious error in the fall of shot:

(a) In the initial salvo.

(b) From salvo to salvo.

(2) When the ship has completed the check, she reports "Solution correct/ neglect," whichever the case may be, and then "Ready" to indicate she is ready to fire again.

c. "Lost." Reported during adjustment, when the fall of shot is not observed. The spotter also commands a remedial action.

-EXAMPLE-

LOST, REPEAT, OVER
or
LOST, DROP 400, OVER (from a speculated burst point).

d. "Record as Target." Ordered at the completion of FFE and before transmission of "End of mission." "Record as target" requests the ship to retain the plot of the location of the target for future refiring or for use as a reference point. Targets must be stored by the ship for as long as the spotter requires and may only be erased by the order, "Cancel target number . . . "

-EXAMPLE-

FIRE MISSION
TARGET NUMBER XJ4567
. . . . .
RECORD AS TARGET
END OF MISSION

FIRE MISSION
REFIRE XJ4567
10 SALVOS FIRE FOR EFFECT
. . . . .
END OF MISSION
CANCEL TARGET NUMBER
XJ4567

e. "Spreading Fire." Reported upon completion of the initial FFE when the spotter desires to distribute FFE over a large area by repeated FFE combined with deviation and range corrections. "Spreading fire" is not required for each subsequent correction during the following FFE.

-EXAMPLE-

SPREADING FIRE
RIGHT 100
ADD 200
REPEAT
OVER

f. "Straddle." Can be reported when a multigun/multisalvo adjustment brackets the target. "Straddle" will be sent during MPI ship-adjust missions.

g. "Trend." Reported as "Trend (direction and distance)" when the spotter observes that rounds are moving away from the target. If the trend is noticed in the FFE and there are enough salvos remaining, a correction can be sent to put the remaining salvos back into the target. Trend may be used with "Check solution."

-EXAMPLE-

TREND SOUTHWEST 100
PER SALVO

h. "Fresh Target." At any time during a fire mission, the spotter may desire to shift his fire from the original target to a target of higher priority. The spotter will do so by transmitting a correction from the last impacted salvo. The ship interrupts engagement of the original target in order to engage the fresh target.

(1) The call for fire begins with "Fresh target," followed by the following information:

(a) Target number.

(b) Deviation correction.

(c) Range correction.

(d) Elevation correction.

(e) Target description.

(f) Method of engagement (if changed from original target).

(g) Method of control (if changed from original target).

(2) Fresh-target procedures can be utilized with all fire control systems.

(3) The spotter may transmit a new direction for the spotting line after the ship fires the initial salvo on the fresh target, only if the new direction differs from the old by more than 100 mils or 5°.

(4) Only those elements of the fresh-target method of engagement and method of control that change from the original target (shell, fuze, etc.) will be transmitted.

(5) In order to reengage the original target or another target, the spotter may again initiate fresh-target procedures. The spotter must not transmit "End of mission" until all desired targets have been engaged. Mission terminations will be transmitted in target number sequence. They must include the complete target number.

-EXAMPLE-

END OF MISSION
TARGET NUMBER AF0013
TROOPS DISPERSED
TARGET NUMBER AF0014
TARGET NEUTRALIZED
OVER

i. "New Target." At any time during a fire mission a spotter may wish to engage another target that is not necessarily of a higher priority. If the ship has the capability, the spotter can do this simultaneously without ceasing fire on his original target. This "Twin target" procedure can be used to speed adjustment for future fireplans for the simultaneous engagement of two targets when only one fire unit is available. Target is indicated using any of the three standard methods of target location:

(1) Call for fire on the second target begins with "New target" and is followed by the other standard elements of the call for fire sent in one transmission. It is sent following acknowledgment of initial target data or after a report of "Shot."

(2) New target procedures can only be used with ships that have fire control systems that are capable of computing two firing solutions simultaneously.

(3) A new direction is sent if required, and adjustment is conducted as for standard fire mission.

(4) To avoid confusion spotter and ship must preface all transmissions with the target number to which orders or responses apply. (This may be abbreviated to the last two digits of the target number when this will not cause confusion and will reduce transmission time.) Once engagement of one target is complete target number prefixes may be dropped.

-EXAMPLE-

TARGET 09 ADD 400
TARGET 10 LEFT 100 ADD 200
OVER

(5) Upon completion of fire for effect on either mission, the spotter may order "End of mission." If he requires to record a target he must order this prior to transmitting "End of Mission."

-EXAMPLE-

TARGET 09
RECORD AS TARGET AB 2009
END OF MISSION
5 VEHICLES BURNING

(FIRE MISSION ON TARGET
10 CONTINUES TO FIRE
FOR EFFECT.)

END OF MISSION
BUILDINGS DESTROYED
OVER

5. Ship's Reports and Orders.

a. "Delay." "Delay" indicates that the ship is not ready to fire. It is normally followed by the estimated time (in minutes) when the ship will be ready to fire (e.g., DELAY 05). If the cause is known and the situation permits, a reason for the delay may be sent using the November Code (See Annex C) so that the spotter is better able to appreciate the situation. The ship transmits "Ready" when she is prepared to fire.

b. "Neglect." "Neglect" informs the spotter that the last round was fired with incorrect firing data. The ship transmits "Ready" to indicate that the situation is corrected.

c. "Rounds Complete." The ship transmits "Rounds complete" when all salvos requested in FFE have been fired.

d. Direction of Gun-Target Line. The ship informs the spotter whenever there is a subsequent change of the GTL of more than 10° (200 mils). If the spotter's direction is GTL, this tolerance is 5° (100 mils).

-EXAMPLE-

GUN TARGET LINE
156 DEGREES GRID
OVER

e. Time of Flight. The ship informs the spotter whenever there is a subsequent change in time of flight of more than 5 seconds.

f. Summit. The ship informs the spotter whenever there is a subsequent change in summit of 300 feet (air spotter) or 100 meters (ground spotter). The summit report is only required when working with an air spotter or when requested by the ground spotter.

SECTION IV—TERMINATION OF FIRE

0107 Termination by Spotter

1. A spotter may end a fire mission at any time. The mission is normally terminated after the FFE phase. When the spotter is satisfied that desired results have been achieved, he orders "End of mission" and reports results.

-EXAMPLE-

END OF MISSION
20 CASUALTIES
OVER

2. When fresh-target procedure is used to engage multiple targets during one fire mission, the spotter reports each target.

-EXAMPLE-

END OF MISSION
TARGET NUMBER UT1076
AUTOMATIC WEAPON SILENCED
TARGET NUMBER UT1077
40 CASUALTIES
OVER

0108 Termination by Ship

1. The commanding officer of the gunfire support ship may determine that he has to terminate fire on a mission. The most likely reasons for this are:

a. The target is out of range.

b. The ship has run short of ammunition.

c. There is a crest clearance problem.

d. The ship or other friendly forces come under threat.

e. The target has been destroyed (ship adjusts missions only).

2. When the ship is unable to fire, it reports "Will not fire" to the spotter. In every case, the ship provides the spotter with the reason for not firing, if transmission of this information will not harm friendly forces.

SECTION V—CORRECTION OF ERRORS

0109 Correcting Errors in Transmission

1. Errors are sometimes made in transmitting data by the spotter or the ship. When the sender realizes that he has made an error, he announces "Correction" and transmits the correct data:

CORRECTION
DIRECTION 5680
OVER

2. The correction is made as an interruption in the transmission, and the transmission will continue with the last word correctly transmitted.

3. When an error has been made in a sub- element and correction of the subelement will affect the transmitted data, the sender announces "Correction" and retransmits the corrected subelement and all affected data in proper sequence. The word, "Correction," is then read back along with the corrected version. For example, the spotter has transmitted:

LEFT 200
ADD 400
UP 40
OVER

4. He realizes that this was in error, and sends:

CORRECTION
LEFT 200
DROP 400
UP 40
OVER

5. If the spotter omitted "Left 200" and "Up 40" from the corrected transmission, the ship might not include them. The omission would at least add confusion.

6. When an error has been made in a subelement of a shift-from-a-known-point target location, the entire shift-from-a-known-point target location must be repeated.

7. The proword, "Wrong," is used in radiotelephone procedure. Its use is modified in calls for fire. An error noted during readback is corrected by the word, "Wrong," followed by the correct version. The word, "Wrong," is then readback, along with the read back of the corrected version.

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CHAPTER 2 Conduct of Fire

SECTION I—GENERAL

0201 Methods of Control

1. General. The spotter has the choice of three methods of control of fire; he also has the option of modifying those methods of control with the use of either "At my command" or, in the case of FFE, "Cannot observe." He informs the firing ship which control method will apply and may change the method of control at any time he deems advisable. The firing ship may initiate direct fire, with the spotter's concurrence, by suggesting "Ship adjust," whenever the target indicated by the spotter is identified positively and is visible from the ship.

2. "Fire for Effect." The spotter's primary concern is to place accurate fire upon targets. Because surprise fire is much more effective, the spotter requests "Fire for effect" in his initial call for fire, if he can accurately locate the target. If the spotter cannot observe the target but has an accurate target location, FFE is an appropriate technique for attacking the target. When the spotter requests "Fire for effect," he must also inform the ship of the volume of fire required. ("Cannot observe" can be used as a modifier with "Fire for effect" when the target is of high enough priority to warrant being fired upon with no one observing the fall of shot to ensure the results desired are obtained.)

3. "Spotter Adjust." This is the primary method of control. This method of control is standard. When used, it may be omitted from the call for fire. The spotter is responsible for adjustment (i.e., ordering corrections relative to the spotting line). The ship converts spotting line corrections to GTL corrections, which it applies to the armament.

4. "Ship Adjust." The ship or the spotter may suggest the "Ship adjust" method of control, if either considers that the ship is in a better position to spot. The spotter designates the target in the normal manner, but the ship spots and adjusts its own fire. The spotter should assist the ship, if possible, by providing GTL range observations, because the ship may experience difficulty in adjusting for range.

5. Modifiers to the Method of Control. The following can be used as modifiers to the various methods of control as the spotter feels are necessary.

a. "Cannot Observe." When the spotter desires to fire on a known or suspected target that neither he nor the ship can observe, he uses "Cannot observe" as a modifier to the method of control. The only logical method of control in this situation is FFE. The spotter must specify the number of salvos to be fired.

b. "At My Command." When the spotter desires to control the firing of each adjusting salvo and the first salvo of his FFE, he should specify "At my command." When the ship is ready to fire, the ship will report "Ready" and the spotter will then tell the ship "Fire."

0202 Selection of Spotting Line

1. General. The spotter selects a reference line on the ground on which the fall of shot can be spotted during a "Spotter adjust" method of control mission, or a target can be located using a shift-from-a-known-point or polar-plot method. The azimuth of the spotting line, known as "direction," is selected for ease of spotting and is transmitted to the ship. It may be any of the following lines.

2. Observer-Target Line. The direction from the spotter to the target, known as the OTL, is the direction most commonly used by ground spotters to spot naval gunfire. The OTL is the direction most

easily and accurately measured and is normally the line along which spotting can be most accurately accomplished. The spotter may determine the direction by using a compass, using a map and protractor, measuring away from a known direction on the ground, or by estimate.

3. Gun-Target Line. The direction from the gun to the target is known as the GTL. A ground spotter can visualize the GTL if he knows the ship's location. He may find it a useful direction if he is positioned on or near the GTL. The GTL is the spotting line most commonly used by aerial observers.

4. Arbitrary Reference Line. In terrain with prominent features, a spotter may select and order the direction of a fixed reference line on the ground, which passes through the target and one or more of the prominent features. Or, where a target is situated close to a straight feature, such as railroad tracks, it may be convenient to visualize a line on the ground that runs through the target and is parallel to the railroad tracks. An ARL may be used in tactical situations in which transmission of the OTL may compromise the spotter's location.

5. Cardinal/Intercardinal Direction. The spotter may use a cardinal/intercardinal direction as a spotting line.

6. Direction. The use of the OTL for direction simplifies spotting procedures for the ground spotter, but there is a chance of compromising the spotter's location. The use of a terrain reference line for direction will not compromise the spotter's location. The use of the observer-reference point line will not compromise the spotter's location and will not change during the engagement. Nevertheless, the use of this line could be more difficult for the spotter. The use of the GTL by the spotter simplifies procedures for the ship but may be difficult for the spotter to reconcile with the terrain. The GTL will also be continuously changing with the ship's movement. To use the GTL, the spotter orders "Direction gun-target line." The ship will report the current direction of the GTL to the spotter in the prefiring report. When GTL is used as the spotting line, the ship should report any changes of 5° (100 mils) or more to the spotter.

0203 Spotting

1. General. A spotting is the spotter's determination of the location of a shell's burst with respect to the target, as observed along the OTL. Spottings are made for deviation (in mils), for range, and, in fuze time fire, for HOB (in mils). The spotter must make his observations at the instant of the burst, in the order that presents the most difficulty in spotting. The correct sequence for accuracy of spotting is:

a. HOB (to the nearest 1 mil that the burst is above the target).

b. Range (over or short).

c. Deviation (to the nearest 5 mils left or right).

2. HOB Spotting. HOB spotting terms are:

a. "Air"—A round or a group of rounds that bursts in the air is spotted as, "Air (so many mils above the target)" (e.g., AIR 15).

b. "Graze"—A round or a group of rounds that bursts on impact is spotted as "Graze."

c. "Mixed (preponderance)"—When some rounds burst in the air and some on impact, the spotting is "Mixed (preponderance)." For example, in a 10-salvo FFE, if 8 salvos burst in the air and 2 salvos burst upon impact, the spotting is "Mixed air."

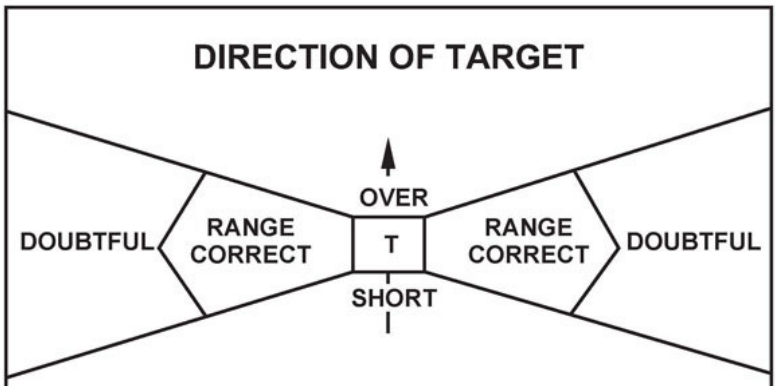
d. "Special Situations"—The terms "High" or "Low" may be used to spot an impact on a vertical face. When a round impacts below the target on a vertical face, it is spotted as "Low." In this situation the spotter should use "Up" or "Down" corrections when adjusting to a target using the standard HE/quick, shell/fuze combinations.

3. Range Spotting. Normally, a round that bursts on or near the OTL will provide a definite range spotting. Figure 2-1 provides a guide for the approximate areas for range spottings and a list of the spotting terms used in accordance with the guide.

4. Deviation Spotting. The spotter observes the angular amount and direction of the deviation of the location of the burst as seen from his position. The spotter measures the deviation (in mils) with binoculars or some other means. The spotting terms are:

a. "Line"—The burst is on the spotting line.

b. "(So many mils) right (left)" (e.g., 16 LEFT).



RANGE SPOTTING TERMS

1. **"Over" — A burst that appears to be beyond the target.**
2. **"Short" — A burst that appears to be short of the target.**
3. **"Target" — The impact of the burst has effect on the target.**
4. **"Range Correct" — A burst that appears to have the correct range.**
5. **"Doubtful" — A burst whose range cannot be determined, usually when the burst is an excessive distance right or left of the target.**
6. **"Lost" — A burst whose location cannot be determined.**

Figure 2-1. Approximate Area and Terms for Various Range Spottings

0204 Adjustment

1. Direction. The spotter normally uses the OTL as the direction. Therefore, his observations of bursts are translated into corrections using a common reference line. The spotter must bear in mind that when the OTL and the direction are different, then his observations and subsequent corrections must be reconciled. For example, when the OTL and direction are at right angles to each other, left/right observations must be converted to add/drop corrections.

2. Corrections. After the spotter has made his spotting determination, he sends corrections (in meters) to the ship to move the next burst in relation to the direction or spotting line. The spotter passes corrections to the ship in the reverse of the order used in spottings:

- Deviation (to the nearest 10 meters).
- Range.
- HOB (to the nearest 5 meters).

a. Deviation Corrections. Corrections are made as follows:

(1) The distance (in meters) that the burst is to be moved is determined by multiplying two amounts:

(a) The spotting deviation (in mils).

(b) The OT factor (distance (in meters) between the spotter and the target, divided by 1,000).

(2) Deviation corrections are made to the nearest 10 meters.

(3) A deviation correction of less than 30 meters is considered minor and will be ignored during fire missions on area targets.

(4) When the spotter's OTL is perpendicular to the GTL, the spotter should consider the large range dispersion when making a deviation correction.

b. Range Corrections. The spotter has three methods for making range corrections:

- Bracketing.
- Creeping.
- One-round adjustment.

(1) Bracketing. The spotter establishes a range bracket as early in the adjustment phase as possible, once he has made the first definite range spotting.

(a) The first range correction should result in the next salvo being spotted opposite the spotting of the previous salvo. For example, if the first definite range spotting is "Short," the spotter adds an amount sufficient to obtain a spotting of "Over" on the next salvo.

(b) Subsequent range corrections are cut in half to move each round successively closer to the target.

(c) Range corrections are made in even multiples of 100 meters (i.e., 800, 400, 200, and 100 meters) to facilitate establishing and splitting of range brackets.

(d) Once a range bracket is established, the spotter splits each range bracket until FFE is appropriate. The spotter must exercise good judgment throughout the adjustment phase, rather than automatically splitting the bracket. For example, the spotter adds 800 meters after an initial range spotting of "Short." The second range spotting is "Over," but the burst is much closer to the target than the initial burst. A range correction of "Drop 200," rather than "Drop 400," would be appropriate. The spotter must be aggressive in the conduct of adjustment and use every opportunity to shorten the adjustment phase.

(2) Creeping. The spotter orders corrections towards the target, ensuring that these corrections for deviation and/or range do not endanger friendly forces. The combined effect of each correction should not exceed 200 meters when adjusting a "Danger close" mission. The terrain around the target will dictate the use of creeping fire. If the target being engaged is located on the military crest, and bracketing or a HOB adjustment may cause the next impact to fall "lost," then the creeping method may be used. In this situation, the creeping method will allow the spotter a view of all impacts and result in a timely FFE. Creeping may also be used to engage targets on a vertical face in order to allow the spotter to view all impacts.

(3) One-Round Adjustment. In the one-round adjustment method, the spotter observes the location of the first round, calculates and transmits to the ship the corrections necessary to move the burst to the target, and commands, "Fire for effect." This method can be used readily when the spotter is equipped with a laser rangefinder.

c. HOB Corrections. Corrections are made as follows:

(1) When firing fuze time, the spotter adjusts HOB after a 100-meter bracket has been established using fuze quick. The spotter corrects HOB to obtain a 20-meter HOB in FFE. He orders the correction as, "Up (down) (so much)."

(2) When the spotting of the initial salvo is "Graze," the spotter adjusts HOB automatically, using the HOB correction, "Up 40."

(3) When the spotting of the initial salvo is "Air," the spotter multiplies the observed number of mils by the OT factor (distance (in meters) between the spotter and the target, divided by 1,000), and orders the HOB correction (in meters) to the nearest 5 meters.

(4) FFE with fuze time is begun only when the correct HOB is assured. FFE is never begun when the last burst observed resulted in a spotting of "Graze."

(5) CVT—When CVT fuze is utilized, no HOB correction is necessary, as the fuze automatically detonates at a height of 7 meters. However, if the minimum safe-arming time on the fuze is not correctly set, the initial rounds may impact on the ground. In this event, the correction "Graze, check solution" should be transmitted.

(6) When engaging a target using fuze quick on terrain that slopes steeply along the GTL, the spotter may use up/down corrections instead of deviation or range corrections.

d. Correcting the Mean Point of Impact. If the MPI is not in the correct position in relation to the target, the spotter adjusts by means of corrections in three dimensions in relation to the selected spotting line.

0205 Fire for Effect

1. The spotter orders "Fire for effect" when a satisfactory adjustment has been obtained: that is, when deviation, range, firing fuze time, and HOB are correct; or when an appropriate range bracket is split. The volume of fire is determined by the target and the purpose of the fire. The spotter is best able to determine the number of salvos required. In his "Fire for effect" command, he specifies the number of guns and number of salvos, if they are different from that requested in the call for fire.

2. The spotter normally orders "Fire for effect":

   a. Against an area target, when splitting a 200-meter bracket.

   b. Against a point target, when splitting a 100-meter bracket.

   c. When the last round has effect on the target.

   d. When the last spotting was range correct, and all that is needed to put the rounds on the target is a deviation correction, which can be measured using the mil-relation formula.

3. If time fuze is to be used, the spotter requests "Fuze time" after deviation and range have been corrected and before ordering FFE. FFE is not ordered until the HOB is correct or the spotter can compute the correction that will result in the correct HOB.

0206 Surveillance

1. The spotter observes the results of FFE and then takes appropriate action to complete the fire mission.

   a. If the fire was accurate, but insufficient, the spotter may request "Repeat" to obtain additional fire.

   b. If the fire was accurate but the target is large and requires further fire, the spotter may request "Spreading fire, (deviation and range corrections), repeat."

   c. If the spotter desires the ship to plot the target for further use, he announces "Record as target," immediately prior to announcing "End of mission."

   d. If the fire has been both accurate and sufficient, the spotter announces "End of mission" and reports the effect observed.

-EXAMPLE-

END OF MISSION
20 CASUALTIES
TROOPS DISPERSING
NORTH
OVER

0207 Unobserved and Lost Rounds

1. Under certain conditions, the spotter may be able to make a spotting, even though he is unable to see the burst. For example, if the spotter hears but does not see the burst, and the only possible place where the burst could have occurred and not have been seen by the spotter is in a ravine beyond the adjusting point, then he could assume that the burst was beyond the adjusting point. He reports this as "Lost."

2. If visibility is temporarily impaired because the spotter has taken cover from incoming fire, the visibility in the target area is obstructed by smoke and dirt, or the spotter is unable to obtain an accurate spotting (he cannot determine, for instance, which burst among several is his), then the spotter orders "Repeat."

a. Causes. A round may be lost for various reasons:

(1) It may be a dud.

(2) The terrain may prevent the spotter from sighting the round or its smoke.

(3) The weather may prevent the spotter from hearing or seeing it.

(4) There may have been errors by the spotter or the ship.

b. Situation. When a round is lost, the spotter must consider the situation, particularly the location of friendly troops with respect to the target, and take corrective action based upon:

(1) His confidence in the location of the target.

(2) The accuracy of the fire on previous missions.

(3) Whether the lost round is an initial round or a subsequent round.

(4) The urgency of the fire mission.

c. Action. When a round is lost, the spotter must take positive action. He can initiate a number of corrective procedures, such as:

(1) Initiate a data check, starting with his target location and then call for fire. If these are correct, he requests the ship to read back the target location and/or last corrections sent. If this checks out, he should request "Check solution," unless he can adjust onto the target using one of the other procedures that follow.

(2) Change the fuze to fuze time and give an HOB correction for a height of burst at 200 meters.

-EXAMPLE-

LOST
FUZE TIME
UP 200
OVER

(3) Repeat the last round.

(4) End the mission and initiate a new mission.

(5) Make a bold correction. The spotter should exercise caution before making a bold deviation or range change when the target is in the vicinity of friendly troops. If a bold correction of 800 meters or more results in another lost round, the spotter should consider ordering "Check solution."

0208 Illumination Fire

1. Uses. Illumination fire may serve the following purposes:

a. Night illumination for:

(1) Surveillance.

(2) Adjustment of fire onto a target.

(3) Harassment.

(4) Marking targets for air attack.

(5) Deception.

b. Other purposes:

(1) Incendiary.

(2) Marking target for daylight air attack.

(3) Orientation of lost ground forces.

c. Continuous illumination may be provided, but the duration will be limited by the amount of star shells carried. The ship should fire at a rate sufficient to ensure that one flare pops while one is at midpoint of descent and one is at burnout. Timing will depend upon the type of shell being used. In coordinated illumination, the ship controls the timing between the firing of each illumination and the HE round based on the desires of the spotter.

2. Characteristics of Illumination Shells.

a. Can be adjusted by the spotter to obtain optimum illumination of target area or accurate marking location.

b. Optimum burnout height is within 50 meters above the target.

c. Parachute rip may occur with some types of star shells; therefore, the spotter may require the ship to increase the range or fire a reduced charge.

d. The empty canister continues to travel along the trajectory (line of fire), beyond flare deployment, presenting a potential danger to friendly troops. Safeguarding friendly units is the responsibility of the spotter and the spotting or coordination agencies (FSCC or SACC).

3. Continuous Illumination Procedures. The spotter adjusts illumination as indicated below. In FFE, the ship fires at a rate such that the target area is kept under continuous illumination. The spotter may increase or decrease that rate of fire at any point in the mission by ordering “Interval (number).”

a. The spotter adjusts illumination fire by ordering corrections in increments of 100 meters for deviation and range and 50 meters for height. However, small corrections are seldom necessary. Bracketing is not used.

b. Once illumination fire has been adjusted, the spotter may transmit one of the following commands:

(1) "Sustained fire, (number) minutes, fire for effect, over."

(2) "(Number) salvos, interval (number), fire for effect, over."

(3) "(Number) salvos, fire for effect (ship fires the requested number of salvos at a sufficient rate to maintain continuous illumination of the target), over."

c. If the spotter desires to terminate illumination at any time during the FFE, he may do so by commanding "Cease illumination."

d. If, during continuous illumination, the spotter acquires a target and desires to change to coordinated illumination procedures (and the supporting ship is capable of providing coordinated illumination), he will transmit the following:

(1) The command "Coordinated illumination."

(2) Any corrections he desires for the illumination.

(3) Target description, method of engagement, and method of control.

e. The ship will fire one illumination round and be prepared to copy "Standby, mark" from the spotter. From this point, the ship and the spotter will follow specific procedures for a coordinated illumination mission, as specified in paragraph 0208.4.

4. Coordinated Illumination Procedures. The spotter's request for coordinated illumination may come as a result of acquiring a target during continuous illumination (paragraph 0208.3) or may be included in the method of engagement in an initial call for fire, following shell/fuze, etc.

-EXAMPLE-

FUZE CVT IN EFFECT
COORDINATED
ILLUMINATION
OVER

a. The ship will report illumination LOF and illumination time of flight and receive an order to fire prior to firing the initial illumination round.

b. Once impact adjustment has begun, one illumination projectile will be fired over each impact adjustment.

c. The ship will transmit HE, GTL, and time of flight and receive an order to fire prior to coordinating HE with illumination.

d. The spotter's request for "Coordinated illumination" alerts the ship that:

(1) The spotter will adjust the illumination.

(2) He will subsequently fire HE projectiles (adjusted or FFE) at a standard interval of 20 seconds after the illuminating round.

(3) The spotter may adjust the interval by using “Advance” or “Retard.”

-EXAMPLE-

ILLUMINATION ADVANCE 5
SECONDS OVER

(4) If at any stage in the fire mission the spotter requires to offer the precise interval between the illumination and HE, he sends the order “Mark will be given.” The ship should then time all subsequent illumination rounds and be prepared to copy “Standby . . . Mark” from the spotter.

e. The spotter will initially adjust illumination on the target in the same fashion as outlined in paragraph 0208.3 (continuous illumination). Once illumination has been adjusted to yield usable light on the target (bold corrections will usually provide sufficient light with the second round), the spotter will transmit “Standby, mark.” This tells the ship that:

(1) HE (or desired adjustment projectile type) will be fired under the next illumination round, coordinated to impact at the “Mark” time for illumination.

(2) HE (or desired adjustment projectile type) will be fired to impact directly under the point of illumination on flare deployment, unless the spotter gives an impact round correction with his “Mark.”

-EXAMPLE-

STANDBY, MARK—HE
RIGHT 300
OVER

f. The ship will at this point send a second prefiring report for HE to the spotter. The ship will transmit “Shot” upon firing the illumination round and “Splash, out” 5 seconds prior to impact of the impact adjustment round.

g. After entering the impact adjustment, the spotter must precede all corrections with the type of shell he wishes adjusted.

-EXAMPLE-

ILLUMINATION RIGHT 200
HE LEFT 100
HE ADD 400
OVER
and
HE ADD 100
10 SALVOS
FIRE FOR EFFECT
OVER

h. During adjustment, the spotter may change the time of impact of the impact rounds in relation to the illumination by transmitting “Advance” or “Retard,” followed by the number of seconds. “Advance” will cause the impact round to be fired and impact sooner, “Retard” later.

-EXAMPLE-

HE ADD 400
RETARD 05 (ZERO-FIVE)
OVER

NOTE

AFTER "ADVANCE" OR "RETARD," SAY ONLY THE NUMBER. SECONDS IS UNDERSTOOD.

i. In the FFE phase, the ship will fire limited continuous illumination, ensuring that the impacts of all FFE impact rounds are illuminated. The ship will fire the last illumination projectile immediately following the firing of the last FFE impact round, unless the spotter commands "Cease illumination," sometime prior to firing the last impact round.

5. Illumination Mission Reports. In order to differentiate between illumination projectiles and other types in coordinated illumination missions, the direction from the gun to the illumination flare deployment will be referred to as "line of fire" instead of "gun-target line." This distinction becomes important to the spotter for the following reasons:

a. Target area winds may cause flare deployment to occur some distance upwind from the actual target, making the line of fire and the GTL significantly different.

b. The spotter and coordination agencies must consider both the line of fire and the GTL in ensuring friendly troop safety.

NOTE

FOR THE SAKE OF SIMPLICITY, SHIPS AND SPOTTERS WILL USE "LINE OF FIRE" IN ALL MISSIONS IN WHICH ILLUMINATION IS USED WHEN REFERRING TO ILLUMINATION PROJECTILE TRAJECTORIES.

6. Illumination Projectile Malfunctions. Two types of malfunctions are unique to illumination rounds. Specific procedures for ships and spotters to compensate for these malfunctions follow.

a. "Ripped Chutes." Due to high muzzle velocity at shorter ranges, flare chutes may rip or separate upon deployment. Should this occur, the spotter will report to the ship "Ripped chute," followed by "Repeat" or "Reduced charge, repeat." Which procedure is used will depend upon how often ripped chutes occur and whether or not the reduced charge will range the target area.

b. "Dark Star." A "dark star" is an illumination round that fails to deploy at all or fails to ignite. Such malfunctions are due to either faulty ammunition or improper time fuze settings. When a "Dark star" occurs, the following action will be taken:

(1) The spotter reports "Dark star, repeat" to the ship.

(2) The ship should immediately check time fuze computations and setting functions, annotate the fuze lot information, record the "Mark and Mod" of the fuze, and prepare to fire the "Repeat" requested by the spotter.

(3) Should further "Dark stars" occur after time fuze settings are confirmed as correct, the fuze lot should be changed if possible.

0209 Destruction Fire

1. General. Destruction fire missions involve deliberate, accurate gunfire normally employing a single gun or turret against each target. They can be expensive in ammunition and take a considerable time to execute. During the mission the gun/turret should not be changed and the ammunition should be of the same lot or batch. The ship should fire in the best conditions compatible with the tactical situation and from the best geographic position with respect to the GTL and the terrain in the target area.

2. Adjustment. If possible, the target should be engaged using the "Ship adjust" method of control; but, where the ship cannot see the target, the spotter must have good visual command of the target. Adjustment is then conducted as outlined in Article 0204.

3. Fire for Effect.

a. Groups of rounds, usually five for a single gun, are fired and the bias for deviation and range noted.

b. A correction is then made to eliminate the bias and a further five rounds are fired. For example, the first five rounds in FFE result in four rounds left and over, and one round left and short.

-CORRECTION-

RIGHT 10
DROP 25
REPEAT

c. The next five rounds in FFE result in three rounds right and short, one round right and over, and one round left and over.

-CORRECTION-

LEFT 5
REPEAT

d. The process is continued, using the minimum corrections the ship is capable of applying, until the target is destroyed.

0210 Massed Fire

1. Requirement. There will be occasions when two or more ships are required to engage large or important targets simultaneously. If they have not already been tasked in direct support, gunfire request procedures must be initiated.

2. Procedures. When ships have been allotted, they will be given a collective call sign and the senior ship will act as OTC. All orders from the spotter will be repeated back by the OTC and acknowledged by the other ships, and the first ship to report "Ready" will be adjusted onto the target in the normal way. The other ships will be individually adjusted as they report "Ready" using rotation mission procedures; usually one or two bold corrections are necessary to bring the MPI into the required target area.

3. "At My Command." To facilitate spotter control, the "At my command" procedure may be employed, and on completion of adjustment the spotter will order:

-EXAMPLE-

CANCEL AT MY COMMAND
ALL GUNS
(NUMBER) SALVOS
FIRE FOR EFFECT
OVER

0211 Suppression of Enemy Air Defense Fire Missions

1. General. SEAD fire missions are conducted to ensure the survivability of friendly aircraft that are operating within range of enemy air defense systems. This is accomplished by delivering suppression fires on known or suspected enemy air defense systems during the critical portions of friendly flight profiles. SEAD fires are typically delivered throughout the period of aircraft vulnerability. These fires may be interrupted, however, during the period when they would endanger the aircraft. SEAD fires are commonly delivered to protect aircraft conducting CAS missions. SEAD fire missions may include the delivery of a munition marking round to help orient a CAS aircrew to its target.

a. SEAD missions are used to accomplish the following:

(1) Suppress a target, thereby reducing that target's capacity to engage friendly aircraft.

(2) Mark a target, identifying it for engagement by friendly air or surface assets.

(3) Suppress and mark targets (combination of 1 and 2).

b. SEAD fire missions may be received from spotting or coordination agencies (SACC or FSCC) and may be transmitted over spotting, control, or support nets. Gunfire support ships must monitor these circuits and be prepared to receive, authenticate, and accept SEAD calls for fire.

2. Planned SEAD Fires. Planned SEAD fires are those missions that are scheduled or on-call. Planned fires are normally promulgated by hard copy message. The message will include any information that the coordinator deems necessary. Normally the following items are addressed:

a. "SEAD request" and target number.

b. Method of engagement information:

(1) Special instructions such as:

(a) Time on target.

(b) Interval and sustained fire periods.

(2) Number of guns and salvos, and type of ammunition desired.

(3) Minimum and maximum GTL (to preclude interference with the strike aircraft).

c. Aircraft time on target (if scheduled).

d. Length of air strike.

e. Time on target following air strike, if needed.

f. Airspace management information, if required.

3. Scheduled Missions. Scheduled missions will be dictated by the SACC or FSCC and delineated in the NGF schedule of fires, an enclosure to the ATF NGF plan. Direct and general support ships will conduct scheduled SEAD missions in accordance with the NGF schedule of fires without additional coordination, unless otherwise directed by the SACC or FSCC.

4. On-Call Missions. On-call missions are planned in advance, but execution of the fires are initiated by the supported landing force or as dictated by the SACC. Ships may receive the order to execute on-call SEAD missions over the NGF air or ground spot nets by spotters or NGLOs, or by the SACC or FSCC over the NGF control net. Schedules of fires for on-call SEAD missions are based on specific aircraft events (e.g., CAS time on target or time to target, unmanned aerial vehicle time on station, search and rescue time on station, or helicopter assault L-hour). In SEAD missions, these aircraft events serve as the H-hour (or zero hour) in the NGF schedule of fires.

5. Initiation of an On-Call SEAD Fire Mission. To initiate an on-call mission, the following information will be addressed in a call for fire:

a. Spotter identification.

b. Warning order and target number. Contains the word “SEAD” prior to the fire mission call to make all participants aware that naval gunfire will be synchronized with an aircraft mission. It also establishes new standards for the shell/fuze and method of control. Because the best shell/fuze combination for suppression is an airburst, the word “SEAD” establishes shell/HE with fuze CVT as the standard for that mission. Also, as most SEAD missions are not adjusted, the word “SEAD” establishes FFE as the method of control. This reduces the amount of information that has to be passed in the call for fire and gives the spotter what is normally best for the typical SEAD mission. If the spotter desires to change these standards, he can do so.

c. Time of specific aircraft event. The SEAD schedule of fires will be preplanned based on the planned routing of the aircraft. When calling for the on-call SEAD mission, the timing of the specific aircraft using a synchronized clock (local or ZULU time), or as time to target using the elapsed time (time hack). Changes to the on-call SEAD schedule or method of engagement can also be made when initiating the on-call mission.

-EXAMPLE-

T4R THIS IS E3P
SEAD FIRE MISSION
TARGET NUMBER NZ3101
OVER

(Ship reads back)

TIME ON TARGET
CAS
OVER

(Ship reads back)

T4R THIS IS E3P
SEAD FIRE MISSION
NUMBER NZ3102
OVER
(Ship reads back)

CAS TIME TO TARGET
6 (minutes understood)
PLUS 00 (seconds understood)
STANDBY . . . HACK
OVER

(Ship responds)
CAS TIME TO TARGET
6 PLUS 00
ROGER (to acknowledge hack)
OUT

d. A hard copy message has already addressed information pertinent to target location, description, schedule of fires, and ammunition and gun requirements for SEAD fire mission on a located enemy air defense asset.

6. Call for Fire on an Immediate SEAD Target. When SEAD fires have not been planned, a spotter or coordination agency requiring such fires may initiate immediate SEAD fires. To request either suppression fire or a marking round, the requesting agency sends a call for fire addressing these elements:

a. Spotter identification. This element is unchanged from a standard call for fire.

b. Warning order and target number. Contains the word "SEAD" prior to the fire mission call to make all participants aware that naval gunfire will be synchronized with an aircraft mission.

-EXAMPLE-

SEAD FIRE MISSION
TARGET NUMBER ER1045
OVER

c. Target location. Suppression and mark targets can be located with either the grid, polar, or shift-from-known-point location methods. The grid method is preferred for SEAD missions to assist the support ship's ability to conduct the mission in a timely manner.

d. Target description. This element is unchanged from a standard call for fire.

e. Method of engagement. Most of the specialized information will be addressed in this element. The requester must specify those subelements in which a change from the standard value is desired.

(1) Ammunition. For suppression, HE/CVT is recommended and will be used unless other ammunition is specifically requested. (WP or illumination may be used for marking. WP will be used unless otherwise specified.

(2) Number of guns and salvos. For suppression, one gun is standard.

(3) Special instructions:

(a) Timing—Time of specific aircraft event (e.g., CAS time on target) upon which SEAD schedule of fires is based. WP marking rounds will be delivered to impact 20 to 30 seconds prior to the aircraft event, unless otherwise specified. Illumination marking rounds will be delivered to impact approximately 45 seconds prior to the aircraft event, unless otherwise specified.

(b) Sustained fire periods—The timing and duration of suppression fires are requested by specifying the duration of fires referenced from the aircraft event time (e.g., "Minus two (minutes understood) through plus 2 (minutes understood)" means suppression salvos are delivered at the standard (or otherwise specified) interval to impact from 2 minutes prior to the aircraft event until 2 minutes after the aircraft event). For CAS missions, two SEAD schedules of fires are standardized to expedite planning and requested SEAD for typical suppression scenarios. "Continuous" SEAD is a standard schedule of suppression fires delivered throughout the critical portion of the friendly aircraft's attack phase and egress, specifically with suppression salvos impacting from 1 minute prior to the initial impact of aircraft delivered ordnance until 1 minute after that initial impact. "Interrupted" SEAD is a standard schedule of suppression fires delivered during the critical portion of the friendly aircraft's attack phase that is interrupted during the period when the aircraft might be endangered by friendly suppression fires impacting near the aircraft's target. Specifically, "interrupted" SEAD is delivered from 1 minute prior to the initial impact of aircraft's ordnance until 30 seconds prior to the initial impact of aircraft's ordnance. "Continuous" and "interrupted" will be used in the call for fire only to request these specific schedules of suppression fires. Any other schedules must be completely specified.

(c) Interval—For suppression, 10-second interval is standard and will be fired unless otherwise specified.

(d) Last round impact time—May be used to reinforce timing.

f. Method of control. The method of control will normally be FFE and thus is not stated. Adjusting suppression or marking rounds may interfere with the timeliness required in a SEAD mission. Normally, suppression or marking rounds do not require adjustment to have the desired effect. If the spotter does not institute a time on target in the special instructions, then "At my command" must be directed to control the firing.

7. Requesting Marking and Suppression Rounds From Same Ship. If the available ship has the capability, the ship may be requested to provide both suppression and marking rounds. The procedure for including both elements in one call for fire require that the location and method of engagement information for both targets be transmitted in a nonconflicting manner. The marking round information is included at the end of the transmission as follows:

a. Spotter identification.

b. Warning order and target number (begins with the word "SEAD" to inform the ship of a specialty mission).

c. Suppression target:

(1) Location.

(2) Description.

(3) Method of engagement:

(a) Ammunition (HE/CVT unless otherwise specified).

(b) Number of guns and salvos (one gun sustained fire unless otherwise specified).

(c) Special instructions (aircraft event time, duration of sustained fire (continuous, interrupted, or specifically stated), interval (10-second interval unless otherwise specified)).

d. Target to mark:

(1) Location.

(2) Method of engagement:

(a) Ammunition. Type of mark, either WP (standard) or illumination (must be specified). Illumination mark implies HOB no greater than 50 meters above the deck to ensure that the illumination marking round burns on the deck.

(b) Specific instructions for marking round to include timing. (WP will impact 20 to 30 seconds prior to aircraft event time unless otherwise specified. Illumination will impact approximately 45 seconds prior to aircraft event time unless otherwise specified.)

e. After the read back, the time hack is transmitted.

8. Criteria for SEAD Mission Abort. SEAD fire missions require strict adherence to time schedules. The support ship or requesting agency should abort the mission if:

a. Gun weapon system casualties or other circumstances will prevent the completion of the mission within the requested time constraints.

b. Hostile fires against the NFS ship require all available firepower to counter.

c. There is an excessive time delay between the cessation of the initial suppression or firing of the marking round and the arrival of the initial air strike. If this occurs, the mission may be requested again on short notice.

9. New SEAD Timing.

a. At any time during the SEAD mission, the spotter or controlling agency may be required to change the timing requirements of the mission. A new aircraft event time may be given at any time during the mission simply by passing a correction for SEAD timing.

-EXAMPLE-

CORRECTION
CAS TIME TO TARGET
10 (minutes understood)
PLUS 00 (seconds understood)
. . . STANDBY . . . HACK,
OVER.

b. Ships must remain flexible and be able to adjust their time lines in the event that this becomes a requirement.

10. Prefiring Reports. The ship will report normal prefiring information prior to opening fire. “Summit” in feet is always included for aircraft coordination. If the call for fire included both suppression and marking rounds, a prefiring report is sent for both. The prefiring reports in this case will be prefaced with either “Suppression” or “Mark,” as appropriate.

SECTION II—SAFETY

0212 Safety of Friendly Forces

1. General. The safety of friendly forces always has to be taken into consideration during the application of NFS. The following procedures are for operational application. General command instructions and local range safety orders govern the more severe restrictions on practice firings and must be studied by NFS agencies beforehand. The three main conditions of concern are:

a. During close fire support.

b. Where gun trajectories pass close to friendly crests.

c. Where aircraft activity is taking place.

2. Close Fire Support. Accuracy of fire depends on a number of variable factors that effect the probable initial salvo error. These are:

a. Slope of terrain.

b. Map and chart characteristics.

c. Accuracy of target locations as given by the spotter.

d. Navigation accuracy.

e. State of training of the gunfire support ship.

f. Accuracy of the fire control solution.

g. Calibration and ballistics.

h. Weather.

3. "Danger Close." The term, "Danger close," is used when fire support is directed close to friendly forces. In these cases, fires are usually controlled by the ground spotter, who will require clearance from the supported unit commander.

a. The following table provides a general guideline for minimum safety distances in meters from friendly lines for unobserved or initial salvos.

Caliber of Gun	Observed or Initial Salvo
Less than 6 inch	750 m
6 inch	1,000 m

b. The responsibility for placement of the first salvo and all subsequent adjustments rests with the spotter and not with the ship. The ship's responsibility is to fire at the target as accurately and as quickly as possible.

4. Safe Correction. During firing, the spotter should not order a correction that will bring a salvo so close as to endanger friendly forces. It may be necessary to creep toward the target rather than to bracket it. The combined effect of each correction should not exceed 200 meters. Safe correction depends mainly on the following factors:

a. Lethal area of the shell burst.

b. Dispersion of the gun.

c. Position of friendly forces with respect to the GTL.

d. Whether direct or indirect fire is being used.

5. Checking Mean Point of Impact. In "Danger close" fire, the MPI of all guns to be used in FFE should be checked early in the adjustment phase. In order to maintain safety, it may be necessary to conduct the complete adjustment process using multigun salvos.

0213 Crest Clearance

1. General. Where the trajectory passes close overhead friendly occupied hill terrain, there is a danger that bursts may occur. The responsibility of ensuring that the trajectory does not hit an intervening crest rests with the ship, but the spotter must use his discretion when selecting targets that lie lower than friendly occupied positions. He must also keep the ship informed of friendly forces on or near the GTL.

2. Crest Clearance Factor. The trajectory of the shell from the gun trajectory tables will give an indication of whether there is a potential danger. If there is, then a more detailed consideration must be made of the following factors:

a. Initial salvo error.

b. Dispersion of gun.

c. Fuze in use.

3. Crest Clearance Calculation. This is done according to national doctrine and has not yet been standardized.

SECTION III—OPERATIONAL CONSTRAINTS

0214 Safety of Friendly Aircraft

1. General. Naval gunfire and tactical aircraft can be employed simultaneously against targets in the same area by using various fire support coordination measures. To ensure the safety of friendly aircraft, the spotter must be constantly alert for aircraft that cross the GTL. The spotter can readily assure the safety of aircraft operating in his target area by utilizing "At my command" as his method of control. For simultaneous naval gunfire and aircraft attacks against a target, the spotter and agency coordinating the aircraft will ensure that if the flight path of the aircraft does cross the GTL, a minimum safe vertical separation will be maintained. In doing this, naval gunfire can provide suppressive fires against enemy antiaircraft positions during air operations. The fire support coordination agency can prevent endangerment of friendly aircraft by employing an ACA in accordance with ATP-8, Volume II.

2. Airspace Coordination Area. ACAs are established by supporting and coordination agencies (FSCC and SACC). They establish three-dimensional blocks of airspace for specific periods in which R

aircraft are safe to fly. Several blocks may be joined up to form approach/exit corridors. Spotters must obtain clearance from the coordination agency before firing through all active ACAs. The urgency of the situation will dictate the relative priorities of air safety and fire support requirements. The ACA message format is as follows:

a. AIRSPACE COORDINATION AREA (NICKNAME).

b. (GRID REFERENCE) TO (GRID REFERENCE); e.g.; LEFT TO RIGHT, UP AND DOWN, ETC.

c. (WIDTH EITHER SIDE OF CENTER) METERS.

d. (ALTITUDE) TO (ALTITUDE) FEET (MEAN SEA LEVEL (MSL) OR ABOVE GROUND LEVEL (AGL)). DEFINE ALTITUDE (QNH, QNE, ETC.)

e. (TIME FROM) TO (TIME TO) IN INCREMENTS (MINUTE/SECOND) AND LOCAL OR ZULU, AND WHO IS RESPONSIBLE FOR GENERATING TIME.

R 0215 Economy of Ammunition

1. Since the quantity of ammunition carried in ships is limited, it is essential that none be wasted, either by engaging unsuitable targets or by expending more than is necessary in adjustment or FFE.

2. Economy in ammunition expenditure is a critical consideration. However, multigun salvos are usually far more effective than single-gun engagements against area targets. Ammunition expenditure should be controlled by firing the minimum number of salvos from the maximum number of guns required to create the desired effect on the target.

SECTION IV—FIRE PLANNING

0216 General

1. A large proportion of NFS is conducted as part of joint fireplans. The responsibility for coordinating these fireplans rests with the FSCC and SACC (see ATP-8, Volume II). However, both spotters and NGLOs will become involved in providing an input to them during the preparatory stage and for implementing portions of them during the execution stage. This section outlines the procedures that must be understood by the NFS control organization.

R 0217 Tactical Tasks

Tactical tasks define the relationship between formations and supporting arms. They specify the fire support responsibilities of a firing unit/formation to a unit/formation receiving fire support.

1. Direct support is a tactical mission to give one firing unit the primary task of providing fire requested by a specific supported unit.

2. Reinforcing is a tactical mission in which one or more firing units augment the fire of another firing unit.

3. General support is a tactical mission for which one firing unit fires in support of an operation of a formation as a whole.

0218 Target Lists

1. During the preparatory phase of fire support planning, an ATF target list is published by CATF after considering inputs from all intelligence sources, including spotters (see ATP-8, Volume II).

2. Fire support elements at all levels of command will submit lists of targets up the chain of command. These lists of targets contain confirmed, suspected, or possible targets for informational and planning purposes.

3. Targets contained in the list of targets may be identified for inclusion in the ATF target list. The format for the ATF target list is contained in ATP-8, Volume II. An example of a target list is shown in Figure 2-2. The ATF target list will be updated by target bulletins.

0219 Target Numbers R

1. Target numbers will consist of two letters followed by four numbers between 0001 and 7999. The numbers 8000 to 9999 are reserved for optional use as counterbattery, toxic chemical, and nuclear targets. The first letter of the two-letter prefix is a national identification letter. The second letter can indicate either the originator or the level holding the target data, depending on national choice. Target numbers will be issued in blocks prior to operations in accordance with the operation order.

0220 Target Classification and Priority

1. Target classifications and priorities are designated by the SACC or FSCC when necessary and are entered in column (h) of the target list. Their meanings are as follows (see ATP-8, Volume II).

a. Target Classification. Targets are classified by the threat they present to the landing force.

(1) Class A Targets—Threaten ships, aircraft, minesweeping, and underwater demolition operations.

(2) Class B Targets—Threaten ship-to-shore movement and the landing on beaches and helicopter sites by the military force.

(3) Class C Targets—Threaten or oppose military operations ashore and assist enemy counterattack.

(4) Class D Targets—Should not be fired upon prior to D-Day.

(5) Class E Targets—Not to be destroyed except under direct orders because of probable future use by friendly forces or for humanitarian reasons.

b. Target Priority. Priority is assigned to each target after further analysis, indicating the desired sequence of attack.

(1) PRIORITY 1—Targets capable of preventing the execution of the plan.

(2) PRIORITY 2—Targets capable of immediate serious interference with the execution of the plan.

(3) PRIORITY 3—Targets capable of ultimate interference with the execution of the plan.

(4) PRIORITY 4—Targets capable of limited interference with the execution of the plan.

ATF TARGET LIST

PART I

(TARGETS TO BE DESTROYED BY ADVANCE FORCE)

LINE NUMBER	TARGET NUMBER	GRID COORDINATES	DESCRIPTION OF TARGET	ELEVATION	TARGET CLASSIFICATION	TARGET PRIORITY
1	NY0001	76642210	RADAR STATION	58 METERS	A	I
2	NY0007	77522288	SAM SITE	7 METERS	A	II
3	NY8012	76082532	FORT w/8-IN GUNS	4 METERS	A	II
4	NY0047	79272330	4 MED TANKS DUG IN	3 METERS	B	II
5	NY0051	78952232	POL DUMP	5 METERS	C	IV

PART II

(TARGETS TO BE NEUTRALIZED BY ADVANCE FORCE)

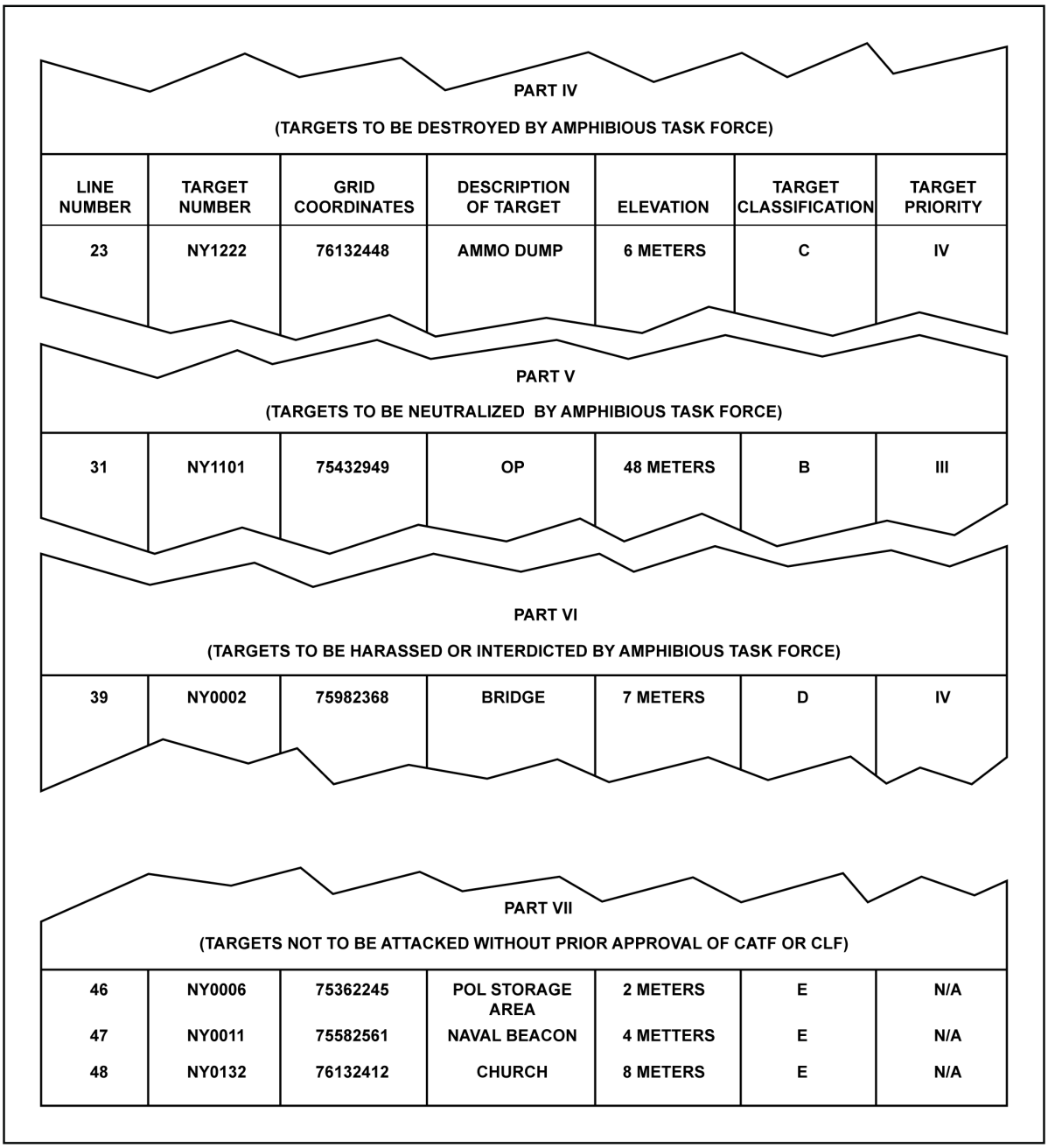
13	NY0033	76442264	INF CO ASSEMBLY AREA	25 METERS	C	III
14	NY0045	75832312	HELIPORT	12 METERS	C	III

PART III

(TARGETS TO BE HARASSED OR INTERDICTED BY ADVANCE FORCE)

17	NY0122	76752452	OP	50 METERS	B	II

R Figure 2-2. Sample Target List (Sheet 1 of 2)



PART IV

(TARGETS TO BE DESTROYED BY AMPHIBIOUS TASK FORCE)

LINE NUMBER	TARGET NUMBER	GRID COORDINATES	DESCRIPTION OF TARGET	ELEVATION	TARGET CLASSIFICATION	TARGET PRIORITY
23	NY1222	76132448	AMMO DUMP	6 METERS	C	IV

PART V

(TARGETS TO BE NEUTRALIZED BY AMPHIBIOUS TASK FORCE)

31	NY1101	75432949	OP	48 METERS	B	III

PART VI

(TARGETS TO BE HARASSED OR INTERDICTED BY AMPHIBIOUS TASK FORCE)

39	NY0002	75982368	BRIDGE	7 METERS	D	IV

PART VII

(TARGETS NOT TO BE ATTACKED WITHOUT PRIOR APPROVAL OF CATF OR CLF)

46	NY0006	75362245	POL STORAGE AREA	2 METERS	E	N/A
47	NY0011	75582561	NAVAL BEACON	4 METTERS	E	N/A
48	NY0132	76132412	CHURCH	8 METERS	E	N/A

Figure 2-2. Sample Target List (Sheet 2 of 2) R

0221 Fireplan

1. Fireplans are normally in two or three parts. The first part consists of a target list that is an extract from previous target lists together with any new targets for the fireplan. The second part is a schedule of fires with a time scale, firing units, volume of fire required, and such other details as are necessary. An example is shown in Figure 2-3. UK AB 545 is often used by NATO Land and Maritime Forces as an alternative. An example is shown in Figure 2-4.

2. The third part may be issued in the form of a target overlay to be used in conjunction with the target list. An example is shown in Figure 2-5.

3. For a more detailed explanation of the schedule of fires, see ATP-8, Volume II.

SECTION V—REPORTS AND RETURNS

0222 Brevity Words

1. NFS reports are designed to keep interested agencies informed of NFS status with the minimum of radio traffic. They are made by ships to the SACC, FSCC, or spotters using the following standard formats. NFS report forms are provided in Figure 2-6.

a. PEPPER. Nonscheduled Fire Mission Report. Made by ship to SACC as soon as possible after firing.

b. HONEY. New Target Report. Made by spotters to SACC as soon as possible as new targets are discovered or when known targets are given a corrected location.

c. PICKLE. Unfired Target Report. Made by ship or spotter to SACC when scheduled targets cannot be fired or when effectiveness is assessed as under 50 percent.

d. CANDY. Ammunition Remaining Report. Sent—coded—in accordance with the operation order.

e. GURF. Guns Up Ready to Fire Report. Made by ship when coming onto NFS station. Summarizes NFS capability when it may be unknown to NFS agencies.

(SECURITY CLASSIFICATION)

References: (See STANAG 2029)
(1) Target List No. _____
(2) Target Overlay No. _____
(3) Operations Order No. _____

Copy No. _____
Issuing Headquarters _____
Place of Issue (may be coded) _____
Date-Time Group of Signature _____
Message Reference No. _____
Sheet ..... of .....

NFS SCHEDULE OF FIRE

FIREPLAN HOT DOG H HOUR 120400Z (Not to be transmitted)

LINE NO.	ORGANIZATION/FORMATION (a)	(b)	SCHEDULED TARGETS (c) -10	-5	H	+5	+10	ON CALL TARGETS (d)	REMARKS (e)
	ORGANIZATION/FORMATION	FIRING UNIT							
1	TG 104	TU 104.1	ZJ 1001 50	ZJ 1002 50	AA 0010 ON CALL			+60	
2	TG 104	TTU 104.2	AB 1012 100		AA 0011 ON CALL			+90	AA 0011 VT/CVT
3	TG 104	TU 104.3	AB 1013 ON CALL		AB 1013 75				AB 1013 50% VT/CVT
4	TG 104							ZP 6001	
5	TG 104							ZP 6002	
6									
7									
8									
9									
10									

Acknowledgment Instructions:
Authentication:
Distribution:

Last Name of Commander:
Rank:

(SECURITY CLASSIFICATION)

R Figure 2-3. Sample Naval Fire Support Schedule of Fire

Artillery Fire Plan Proforma

AB 545
Revised 8/90

Fire Plan	3971	Supporting	GSMP	Originator	M22	Modifications by	M22
Superimposed	A2Ø Throughout	H Hour	Ø53ØZ	Sheet	1	of 1	Date/Time Group	Ø2Ø1ØØ Z

Target Information

	(a)	(b)	(c)	(d)	(e)
Line	Target No.	Description	Location	Alt	Remarks
1	XT 28ØØ	Coy Posn	814 26Ø	42Ø	TO BE ADJUSTED G 6X WITH S4H
2	XT 28Ø1	Coy Posn	82Ø 265	415	TO BE ADJUSTED M4N WITH D2S
3	XT 28Ø2	SAM SITE	832 259	42Ø	ALREADY ADJUSTED
4	XT 28Ø3	TANKS	828Ø 2715	422	PREDICT
5	XT 28Ø4	Suspected Gun Posn	823Ø 263Ø	415	PREDICT ON CALL 4 RDS FFE
6	XT 28Ø5	Suspected Mor Posn	831Ø 2645	418	PREDICT ON CALL 4 RDS FFE
7	XT 28Ø6	DF 1	8195 26Ø6	425	PREDICT ON CALL 3 RDS FFE
8	XT 28Ø7	DF 2	8215 2685	43Ø	PREDICT ON CALL 3 RDS FFE
9	XT 28Ø8	FPF	82Ø9 27Ø5	416	PREDICT ON CALL 5 RDS FFE
10					
11					
12					

Schedule

	(f)	(g)	(h) Timings -1Ø -5 H 5 1Ø 15 2Ø
Line	Regt or Fmn	Fire Units	
1	A2Ø	ARTY	XT 28ØØ (a); XT 28Ø1 (a); XT 28Ø8 (d)
2	B4Ø	ARTY	XT 28ØØ (a); XT 28Ø1 (a); XT 28Ø8 (d)
3	T44	MOR	XT 28Ø2 R3; XT 28Ø51 PREDICT ON CALL 4 RDS FFE; XT 28Ø8 (d)
4	G6X	NGS	XT 28Ø2 (c); XT 28Ø6 (e)
5	M4N	NGS	XT 28Ø2 (c); XT 28Ø7 (e)
6	SAXON	AIR	XT 28ØØ (f)
7	AXE	AIR	XT 28Ø1 (f)
8	T151	AVN	XT 28Ø3 (g)
(j)	Remarks		(a) 6 Rds Fol by R3 (b) Smoke 2 Rds Fol by R3 (c) 9 Salvos FTE interval 3Ø (d) On call 5 Rds FFE (e) On call 3 Rds FFE (f) 2x Tornados with CBU (g) 2x Ton LYNX - opportunity targets

HMSO Dd 8348590/D2294A, 03/91, GP 5600, CCN 32484

Figure 2-4. Sample United Kingdom Fire Plan Format (AB-545)

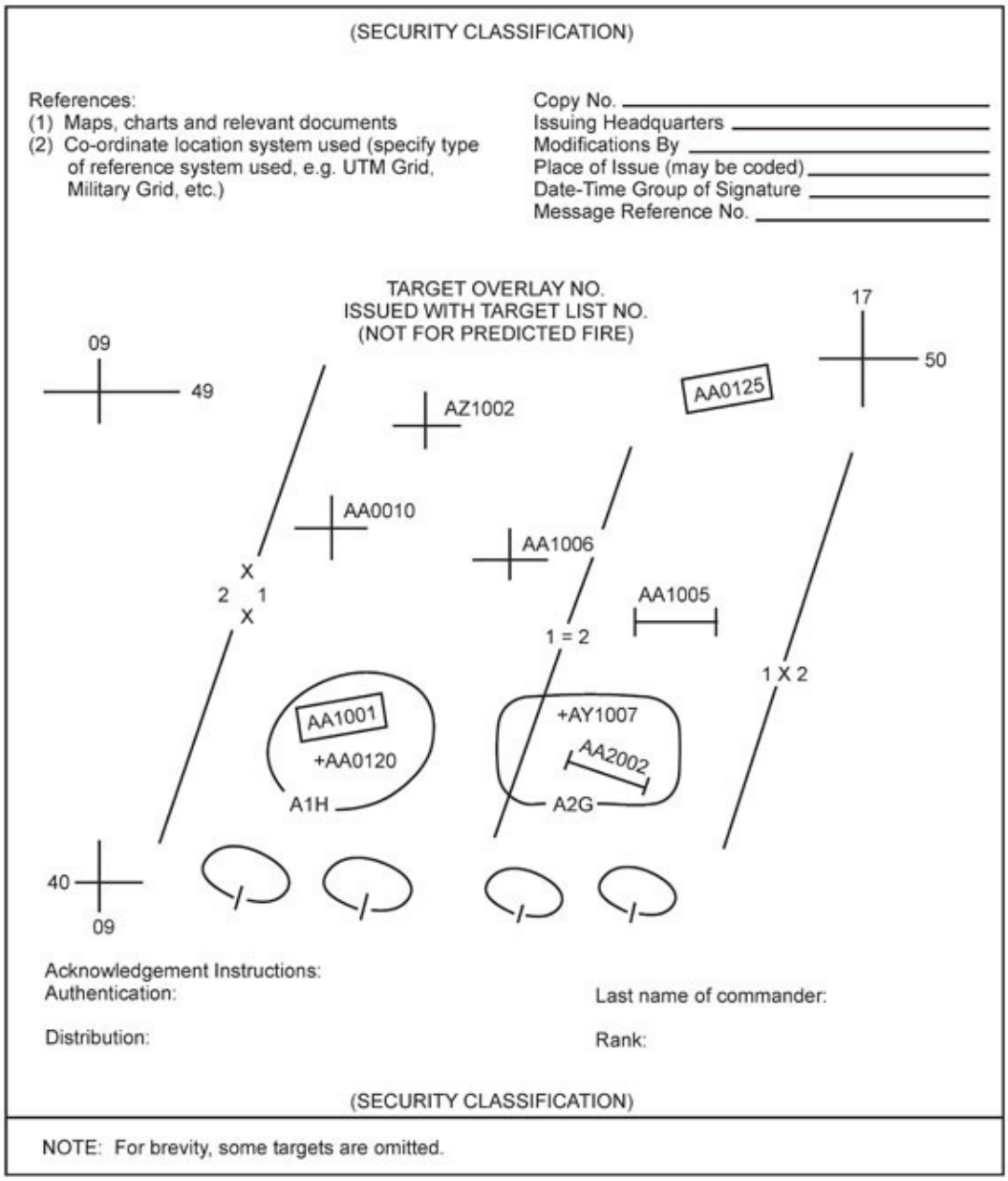


Figure 2-5. Sample Target Overlay

NAVAL FIRE SUPPORT REPORT FORM

_____ _____
(Firing Ship Call Sign) (Date-Time Group)

REPORT (CHECK ONE)	INCLUDE ITEMS	TYPE OF REPORT
[ ] PEPPER	ALPHA, BRAVO, CHARLIE DELTA, ECHO, & FOXTROT	NONSCHEDULED FIRE MISSION
[ ] HONEY	ALPHA, BRAVO, CHARLIE	NEW TARGET
[ ] PICKLE	BRAVO, CHARLIE, & GOLF	UNFIRED TARGET
[ ] CANDY	HOTEL	AMMO REMAINING

* * * * * * * * * * * *

ALPHA _____
(TYPE OF MISSION)

BRAVO _____
(TARGET NUMBER AND GRID COORDINATES)

CHARLIE _____
(TARGET DESCRIPTION)

DELTA _____
(AGENCY CONTROLLING FIRE — VOICE CALL)

ECHO _____
(TARGET ASSESSMENT — DESTROYED, NEUTRALIZED, DETAILS)

FOXTROT _____
(AMMUNITION EXPENDED — CODE, NUMBER, TYPE, & CALIBER)

GOLF _____
(REASON TARGET NOT FIRED ON)

HOTEL _____
_____
_____
_____
(ENTER, USING CODE, AMOUNT, TYPE, & CALIBER OF EACH TYPE OF BOMBARDMENT AMMUNITION REMAINING)

INDIA _____
(ACTION TAKEN OR UNDER CONSIDERATION)

Figure 2-6. Naval Fire Support Report Form (Sheet 1 of 2)

GUNS UP AND READY TO FIRE (GURF) REPORT

FROM: SHIP

TO: SFCP/FO PARTY

ALPHA _____
(CALL SIGN OF SHIP)

BRAVO _____
("ON STATION AND READY" AND DTG (LOCAL) END OF NGS ASSIGNMENT)

CHARLIE _____
(PLANNED FIRING LOCATION (GRID COORDINATES). IF THE SHIP WILL BE FIRING FROM A TRACK, THE APPROXIMATE CENTER OF THE TRACK)

DELTA _____
_____
_____
_____
(SIGNIFICANT REDUCTION IN CAPABILITY, TO INCLUDE MOUNT CASUALTIES, AMMUNITION SHORTAGES)

ECHO _____
_____
_____
_____
(ANY OTHER INFORMATION THAT WILL HAVE SIGNIFICANT EFFECT UPON SHIP CAPABILITY TO PROVIDE NFS)

NOTE: DELTA AND ECHO WILL BE DELETED FROM TRANSMISSION IF NOT APPLICABLE

Figure 2-6. Naval Fire Support Report Form (Sheet 2 of 2)

CHAPTER 3 Communications

0301 Naval Fire Support Nets

1. Minimum Requirement. The minimum number of NFS nets required will depend on the size of the force and the number of NFS assets deployed. ATP-8, Volume II, gives further details on NFS communications, but for a landing force of regimental landing team/brigade size, the minimum nets required are as follows:

a. Naval Gunfire Control Net.

b. Naval Gunfire Ground Spot Net.

c. Naval Gunfire Airspot Net.

d. Landing Force Naval Fire Support Net (HF).

e. Landing Force Naval Fire Support Net (see paragraph 0301.6).

f. Forward Observer Party Net (see paragraph 0301.6).

g. Shore Fire Control Party Local Net (see paragraph 0301.6).

2. Naval Gunfire Control Net. This net is normally established by the operations order prior to NFS activities. It provides the OTC, who is net control, with the means to control and coordinate the activities of all naval fire support agencies. It is guarded by all fire support ships and by designated headquarters ashore. Also, ground spotters may pass a request for support on this net and shall keep watch on this net when they are not assigned to support ships. This net, which is intended primarily for operational traffic, may become overloaded if there are many support ships. Consequently, overload nets may be required to handle separately the administrative traffic. The naval gunfire representative of the OTC may use the naval gunfire control net to:

a. Assign fire support ships to spotters.

b. Relieve and reassign fire support ships.

c. Pass information regarding ammunition levels, when tactical circumstances so require.

d. Pass intelligence affecting NFS.

e. Pass information regarding prearranged fires.

f. Receive shore requests regarding support requirements.

g. Pass information regarding trajectory.

h. Pass orders and instructions relative to massing of fires, time on target, and lifting of fires.

i. Request services of an airborne spotter.

3. Naval Gunfire Ground Spot Net. This net enables a ground spotter, who is assigned a support ship, to call for and adjust naval gunfire. If the spotter does not establish communications within 10 minutes of allocation, he is to return to the control net and report. When a sufficient number of frequencies is available, each net should be assigned a separate clear frequency. Depending on standing operating procedures, net control is either the NGLO (or his equivalent) or the ground spotter. He normally employs low-powered, high-frequency radio equipment to call the assigned ship to establish the net. The ship sets watch either 30 minutes before firing is scheduled to commence, or from whenever the ship is allocated to the spotter, if less than 30 minutes remain before firing is scheduled to commence. The spotter makes repeated calls to the ship until communications are established. The ship normally should not transmit until called.

4. Naval Gunfire Airspot Net. This net provides communication between an airborne spotter and a support ship. Depending on standing operating procedures, net control is either the NGLO or the airborne spotter. The net normally is employed to call for and adjust fire. When equipment and available frequencies permit, each net should be assigned a frequency in the VHF/UHF band. Ships carrying their own spotting aircraft employ airborne spotters, as required, using call signs and frequencies assigned in the operation plan or order. Ships not carrying their own spotting aircraft ordinarily do not initiate requests for airborne spotters. Rather, a force ashore or the headquarters ship normally originates a request for an airborne spotter. The airborne spotter is briefed separately and reports to air control for last minute instructions before calling the support ship. (He reports to air control again when released by the support ship.) Establishment of the net is initiated by the airborne spotter calling his assigned support ship. Obviously, aircraft radio tuning prior to takeoff must be accurate to avoid loss of efficiency and mutual interference with other circuits. Employment of preset crystal-controlled channels will improve flexibility and speed in use of airborne spotters.

5. Landing Force Naval Fire Support Net (HF). This net provides a means for requesting NFS and coordinating the employment of gunfire support ships in general support of the landing force. The net is guarded by, and provides radio communications for, the landing force NGFO (net control), NGFOs with subordinate units, and ships in general support of the landing force.

6. Landing Force Naval Fire Support Net, Forward Observer Party Net, and Shore Fire Control Party Local Net. These nets are for the same purpose using different terminology. They provide communications between spotters, FSCCs, and the NGLOs and are used for the passage of information, routine reports, orders, and general information.

0302 Procedures

1. General. The communication procedures in ACP 124 and 125 are used in NFS. However, these procedures may be abbreviated when there is no danger of confusion, for example:

a. After the warning order in the call for fire, call signs may be omitted.

b. Use of procedural words and phrases may be limited.

c. A short-phrase, report-back method of transmission may be automatically accomplished without special operating instructions.

d. Departure may be made from normal or abbreviated message format.

2. Precedence. A request for support, an allotment, or a call for fire will be considered equivalent to an IMMEDIATE message and will be accorded the considerations of that precedence, although the word “IMMEDIATE” is not included in the message heading.

3. Call Signs and Frequencies. To permit flexibility in the employment and assignment of firing ships, each ship, spotter, and NGLO shall be furnished with a list of call signs and frequencies assigned to all NFS forces. Call signs and frequencies will be allocated in the communications plan by the appropriate authority.

4. Codes and Ciphers. In selecting and designating codes and ciphers to be employed by spotters and NGLOs, due consideration must be given to the possibility of capture or compromise.

5. Authentication. The possibility that enemy radio stations might employ deception in order to gain information or cause own fire on friendly forces demands that detailed procedures be employed for the use of authentication. To avoid deception, the ship should initiate authentication procedures upon establishing initial communications with the spotter on an uncovered net. Authentication procedures will be found in the applicable operation order.

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ANNEX A Examples

A101 List of Examples

1. Request for support and allotment signal, Figure A-1.
2. Engagement of an area target, Figure A-2.
3. Engagement of a point target, Figure A-3.
4. Engagement with an airborne observer, Figure A-4.
5. Engagement with fuze time, Figure A-5.
6. Engagement with fuze VT/CVT, Figure A-6.
7. Engagement with danger close, Figure A-7.
8. Engagement with ship adjust, Figure A-8.
9. Engagement of a recorded target, Figure A-9.
10. Fresh target shift, Figure A-10.
11. Engagement of new target, Figure A-11.
12. Continuous illumination, Figure A-12.
13. Simultaneous illumination of two targets, Figure A-13.
14. Coordinated illumination, Figure A-14.
15. Coordinated illumination—Standard interval, Figure A-15.
16. SEAD engagement with suppression rounds, Figure A-16.
17. SEAD engagement with suppression and marking rounds, Figure A-17.

A102 Notes On Examples

1. Call signs used:

   Y2P Ship

   C5E Ground Spotter

   A3Z Air Spotter

2. Communications are assumed to have been established.

3. Authentication has not been shown.

4. The examples given are written with the object of bringing out as many procedural points as possible.

SERIAL	FROM	VOICE	REMARKS
1	FSCC	SM THIS IS D7P GUNFIRE REQUEST TARGET NUMBER AH1462 PRIORITY 1, CLASS B GRID 224778, ALTITUDE 55* AA MISSILE POSITION* 200900Z, 05 MINUTES 5 INCH, 54 CAL, TWO GUNS 20 SALVOS, HE/CVT CONTACT C5E* ...OVER	In this request for support, SM is acting as OTC, D7P is the landing force FSCC. C5E is the spotter. *If required.
2	OTC	D7P THIS IS SM (READ BACK)...OUT	
3	OTC	C5E, D7P, AND Y2P, THIS IS SM TARGET NUMBER AH1462 Y2P CONTACT D7P ON D557 AT 200850Z FOR MISSION COMMENCING 200900Z VOICE 40 ROUNDS IN 20 SALVOS HE/CVT 200850Z TO 200910Z BEACON LOCATION 208700 ALTITUDE 100 CODE 6 200845Z TO 200915Z...OVER	This begins the allotment signal sent by the OTC to the spotter, FSCC, and the ship.
4	NAVAL GUNFIRE SHIP	SM THIS IS Y2P (READ BACK)...OUT	
5	SPOTTER	SM THIS IS C5E ROGER...OUT	
6	FSCC	SM THIS IS D7P ROGER...OUT	
(Altitude is understood as meters.)			

Figure A-1. Request for Support and Allotment Signal

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0001...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0001...OUT	
3	SPOTTER	GRID 158241 ALTITUDE 150 DIRECTION 2750 PLATOON POSITION, 100 X 200 ATTITUDE 1600...OVER	Grid coordinates. Target location and altitude are understood as meters. Direction is understood as mils grid. Shell/fuze combination is understood as HE/Q. Method of control is understood to be “Spotter adjust.”
4	SHIP	(READ BACK)...OUT	
5	SHIP	GUN-TARGET LINE 2310 READY 34...OVER	Unit of measure for gun-target line (GTL) is same as observer’s direction (mils grid).
6	SPOTTER	GUN-TARGET LINE 2310 READY 34...BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	LEFT 100 ADD 200 ...OVER	Spotter adjusts to establish bracket.
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	
12	SPOTTER	DROP 100, 6 SALVOS INTERVAL 10 FIRE FOR EFFECT...OVER	Spotter desires to suppress the target for a period of time and save ammunition.
13	SHIP	(READ BACK)...OUT	
14	SHIP	SHOT...SPLASH...OUT	
15	SHIP	ROUNDS COMPLETE...OVER	
16	SPOTTER	(READ BACK)...OUT	
17	SPOTTER	RECORD AS TARGET NUMBER AF0001 . . . OVER PLATOON NEUTRALIZED...OVER	Spotter anticipates a need to fire the same target in the future.
18	SHIP	(READ BACK)...OUT	
19	SPOTTER	END OF MISSION, PLATOON NEUTRALIZED . . . OVER	
20	SHIP	(READ BACK) . . . OUT	

Figure A-2. Engagement of an Area Target

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0002...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0002...OUT	
3	SPOTTER	DIRECTION 1670 DISTANCE 2400 DOWN 40 MACHINE GUN...OVER	Polar plot. Direction is understood as mils grid, altitude as meters, shell/fuze combination to be HE/Q, and method of control to be “Spotter adjust.”
4	SHIP	(READ BACK)...OUT	
5	SHIP	GUN-TARGET LINE 3200 READY 34...OVER	
6	SPOTTER	GUN-TARGET LINE 3200 READY 34... BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	LEFT 100 ADD 200 ...OVER	Spotter adjusts to establish bracket.
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	
12	SPOTTER	RIGHT 30 DROP 100 ...OVER	
13	SHIP	(READ BACK)...OUT	
14	SHIP	SHOT...SPLASH...OUT	
15	SPOTTER	DROP 50 15 SALVOS FIRE FOR EFFECT...OVER	Spotter splits 100-meter bracket.
16	SHIP	(READ BACK)...OUT	
17	SHIP	SHOT...SPLASH...OUT	
18	SHIP	ROUNDS COMPLETE...OVER	
19	SPOTTER	(READ BACK)...OUT	
20	SPOTTER	TREND SOUTHWEST 20 PER SALVO LEFT 200 ADD 200 REPEAT...OVER	Spotter has observed a trend of fire-for-effect salvos to the southwest.
21	SHIP	(READ BACK)...OUT	
22	SHIP	SHOT...SPLASH...OUT	
23	SHIP	ROUNDS COMPLETE...OVER	
24	SPOTTER	(READ BACK)...OUT	
25	SPOTTER	END OF MISSION MACHINE GUN SILENCED...OVER	
26	SHIP	(READ BACK)...OUT	

Figure A-3. Engagement of a Point Target

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS A3Z FIRE MISSION TARGET NUMBER AF0003...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	A3Z THIS IS Y2P FIRE MISSION TARGET NUMBER AF0003...OUT	
3	SPOTTER	GRID 285175 ALTITUDE 480 FEET DIRECTION GUN-TARGET LINE ASSEMBLY AREA AT MY COMMAND...OVER	Grid coordinates. Unit of measure is transmitted, as it differs from standard. Shell/fuze combination is understood as HE/Q. Spotter desires to control the firing of each adjustment.
4	SHIP	(READ BACK)...OUT	
5	SHIP	GUN-TARGET LINE 1130 SUMMIT 6,000 FEET READY 24...OVER	Ship must transmit summit in feet to an airborne spotter.
6	SPOTTER	(READ BACK)...OUT	
7	SHIP	READY 24...OVER	
8	SPOTTER	READY 24...BREAK... FIRE...OVER	
9	SHIP	SHOT...SPLASH...OUT	
10	SPOTTER	RIGHT 40 ADD 200 ...OVER	Spotter adjusts to establish bracket.
11	SHIP	(READ BACK)...OUT	
12	SHIP	READY...OVER	
13	SPOTTER	CHECK FIRING...OVER	Used by spotter to interrupt firing temporarily, usually for safety reasons.
14	SHIP	(READ BACK)...OUT	
15	SPOTTER	CANCEL CHECK FIRING...FIRE ...OVER	Must be canceled by the same station that initiates it.
16	SHIP	(READ BACK)...OUT	
17	SHIP	SHOT...SPLASH...OUT	
18	SPOTTER	DROP 100 15 SALVOS FIRE FOR EFFECT...OVER	Spotter has split 200-meter bracket.
19	SHIP	(READ BACK)...OUT	
20	SHIP	READY...OVER	
21	SPOTTER	READY...FIRE...OVER	
22	SHIP	FIRE...OUT	
23	SHIP	SHOT...SPLASH...OUT	
24	SHIP	ROUNDS COMPLETE...OVER	
25	SPOTTER	ROUNDS COMPLETE...OUT	
26	SPOTTER	END OF MISSION 20 CASUALTIES...OVER	
27	SHIP	(READ BACK)...OUT	

Figure A-4. Engagement With an Airborne Observer

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0004...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0004...OUT	
3	SPOTTER	FROM TARGET NUMBER NZ2001 DIRECTION 0510 RIGHT 240 ADD 400 UP 35 TROOPS IN TRENCHES FUZE TIME IN EFFECT TWO GUNS IN EFFECT...OVER	Shift from a known point. Direction is understood to be mils grid. Altitude is understood to be meters. Spotter desires fuze time in effect. Method of control is understood to be “Spotter adjust.”
4	SHIP	(READ BACK)...OUT	
5	SHIP	GUN-TARGET LINE 2050 READY 14...OVER	Gun-target line (GTL) is understood to be mils grid.
6	SPOTTER	GUN-TARGET LINE 2050 READY 14...BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	RIGHT 100 ADD 200 ...OVER	Spotter adjusts to establish bracket. Note: Adjustment is done with HE/Q.
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	
12	SPOTTER	FUZE TIME LEFT 30 DROP 100...OVER	Spotter starts to adjust fuze time after splitting 200-meter bracket.
13	SHIP	(READ BACK)...OUT	
14	SHIP	SHOT...SPLASH...OUT	
15	SPOTTER	UP 40...OVER	Initial fuze time burst was graze.
16	SHIP	(READ BACK)...OUT	
17	SHIP	SHOT...SPLASH...OUT	
18	SPOTTER	DOWN 15 10 SALVOS FIRE FOR EFFECT...OVER	Airburst was obtained. Down 15 is transmitted to achieve 20-meter height of burst.
19	SHIP	(READ BACK)...OUT	
20	SHIP	SHOT...SPLASH...OUT	
21	SHIP	ROUNDS COMPLETE...OVER	

Figure A-5. Engagement With Fuze Time (Sheet 1 of 2)

SERIAL	FROM	VOICE	REMARKS
22	SPOTTER	ROUNDS COMPLETE...OUT	
23	SPOTTER	20 SALVOS SUSTAINED FIRE 5 MINUTES REPEAT...OVER	Spotter desires 20 salvos fired over a 5-minute period on the last fire-for-effect data.
24	SHIP	(READ BACK)...OUT	
25	SHIP	SHOT...SPLASH...OUT	
26	SHIP	ROUNDS COMPLETE...OVER	
27	SPOTTER	ROUNDS COMPLETE...OUT	
28	SPOTTER	END OF MISSION 20 CASUALTIES...OVER	
29	SHIP	(READ BACK)...OUT	

Figure A-5. Engagement With Fuze Time (Sheet 2 of 2)

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0005...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0005...OUT	
3	SPOTTER	DIRECTION 2160 DISTANCE 2400 DOWN 30 TRUCK PARK REDUCED CHARGE FUZE CVT 10 SALVOS FIRE FOR EFFECT...OVER	Polar plot. Direction is understood to be mils grid. Distance and altitude are understood to be meters. Spotter desires fuze CVT, reduced charge, and immediate fire for effect. Fuze VT may be used when no CVT fuzes are available.
4	SHIP	(READ BACK)...OUT	
5	SHIP	GUN-TARGET LINE 6350 READY 38...OVER	Gun-target line (GTL) is understood to be mils grid.
6	SPOTTER	GUN-TARGET LINE 6350 READY 38... BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SHIP	ROUNDS COMPLETE...OVER	
10	SPOTTER	ROUNDS COMPLETE...OUT	
11	SPOTTER	END OF MISSION 8 TRUCKS DESTROYED...OVER	
12	SHIP	(READ BACK)...OUT	

Figure A-6. Engagement With Fuze VT/CVT

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0006...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0006...OUT	
3	SPOTTER	FROM TARGET NUMBER AB4000 DIRECTION 3210 RIGHT 120 ADD 400 UP 30 AUTOMATIC WEAPON DANGER CLOSE NORTHEAST 300 FIRST SALVO AT ADD 450...OVER	Shift from a known point. Direction is understood as mils grid. Friendly troops are located 300 meters northeast of target. For safety, the spotter desires the first salvo to be fired 450 meters beyond the target along the observer-target line (OTL).
4	SHIP	(READ BACK)...OUT	
5	SHIP	GUN-TARGET LINE 6400 FIRST SALVO AT ADD 450 READY 26...OVER	Gun-target line (GTL) is understood to be mils grid.
6	SPOTTER	GUN-TARGET LINE 6400 FIRST SALVO AT ADD 450 READY 26...BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	LEFT 50 DROP 100 ...OVER	
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	
12	SPOTTER	DROP 100...OVER	Spotter is creeping due to danger close situation.
13	SHIP	(READ BACK)...OUT	
14	SHIP	SHOT...SPLASH...OUT	
15	SPOTTER	DROP 50 10 SALVOS FIRE FOR EFFECT...OVER	
16	SHIP	(READ BACK)...OUT	
17	SHIP	SHOT...SPLASH...OUT	
18	SHIP	ROUNDS COMPLETE...OVER	
19	SPOTTER	ROUNDS COMPLETE...OUT	
20	SPOTTER	END OF MISSION AUTOMATIC WEAPON DESTROYED...OVER	
21	SHIP	(READ BACK)...OUT	

Figure A-7. Engagement With Danger Close

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0007...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0007...OUT	
3	SPOTTER	DIRECTION 078 DEGREES MAGNETIC DISTANCE 3000 DOWN 40 TANK COLUMN SHIP ADJUST...OVER	Polar plot. Spotter determines that the ship is best able to engage the target with direct fire.
4	SHIP	(READ BACK)...OUT	Ship will engage the target. Spotter will provide range-error spottings if required. Spotter will also provide surveillance.

Figure A-8. Engagement With Ship Adjust

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION REFIRE TARGET NUMBER AF0008 10 SALVOS FIRE FOR EFFECT...OVER	Recorded target or target from amphibious task force target list. Target location, target description, and other data are not required, unless changed from recorded data.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION REFIRE TARGET NUMBER AF0008 10 SALVOS FIRE FOR EFFECT...OUT	
3	SHIP	GUN-TARGET LINE 1780 READY 16...OVER	Gun-target line (GTL) is understood to be mils grid.
4	SPOTTER	GUN-TARGET LINE 1780 READY 16...BREAK... FIRE...OVER	
5	SHIP	FIRE...OUT	
6	SHIP	SHOT...SPLASH...OUT	
7	SHIP	ROUNDS COMPLETE...OVER	
8	SPOTTER	ROUNDS COMPLETE...OUT	
9	SPOTTER	END OF MISSION TRUCKS DESTROYED...OVER	
10	SHIP	(READ BACK)...OUT	

Figure A-9. Engagement of a Recorded Target

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0011...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0011...OUT	
3	SPOTTER	GRID 132546 ALTITUDE 70 DIRECTION 2480 TROOPS DUG IN FUZE CVT IN EFFECT...OVER	Grid coordinates. Altitude is understood to be meters. Direction is understood to be mils grid. Method of control is understood to be “Spotter adjust.”
4	SHIP	(READ BACK)...OUT	
5	SHIP	GUN-TARGET LINE 2560 READY 16...OVER	Gun-target line (GTL) is understood to be mils grid.
6	SPOTTER	GUN-TARGET LINE 2560 READY 16...BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	RIGHT 180 ADD 400 ...OVER	Spotter adjusts to establish bracket.
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	
12	SPOTTER	FRESH TARGET TARGET NUMBER AF0012 RIGHT 600 ADD 400 UP 40 TRUCK CONVOY...OVER	Fresh target location is given from the impact of last round fired. Only those elements that are different from the original call for fire are transmitted.
13	SHIP	(READ BACK)...OUT	
14	SHIP	SHOT...SPLASH...OUT	
15	SPOTTER	DIRECTION 2700 DROP 200 6 SALVOS FIRE FOR EFFECT...OVER	Direction to fresh target is given after first round is fired.
16	SHIP	(READ BACK)...OUT	
17	SHIP	12 SHOT...SPLASH...OUT	
18	SHIP	12 ROUNDS COMPLETE...OVER	
19	SPOTTER	12 ROUNDS COMPLETE...OUT	
20	SPOTTER	FRESH TARGET TARGET NUMBER AF0011 LEFT 600 DROP 100 DOWN 40 ENEMY TROOPS DUG IN SPOTTER ADJUST...OVER	Spotter goes back to adjustment on original target.

Figure A-10. Fresh Target Shift (Sheet 1 of 2)

SERIAL	FROM	VOICE	REMARKS
21	SHIP	(READ BACK)...OUT	
22	SHIP	11 SHOT...SPLASH...OUT	
23	SPOTTER	11 DIRECTION 2480 ADD 100 5 SALVOS FIRE FOR EFFECT...OVER	
24	SHIP	(READ BACK)...OUT	
25	SHIP	11 SHOT...SPLASH...OUT	
26	SHIP	11 ROUNDS COMPLETE...OVER	
27	SPOTTER	11 ROUNDS COMPLETE...OUT	
28	SPOTTER	11 END OF MISSION TROOPS DISPERSING 12 END OF MISSION TWO TRUCKS DESTROYED...OVER	End-of-mission data is given in target number sequence.
29	SHIP	(READ BACK)...OUT	

Figure A-10. Fresh Target Shift (Sheet 2 of 2)

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0011...OVER	Transmission is broken after target number.
2	SHIP	(READ BACK)...OUT	
3	SPOTTER	GRID 132546 ALTITUDE 70 DIRECTION 2480 TROOPS DUG IN FUZE CVT IN EFFECT...OVER	Direction is understood to be mils grid, altitude is understood to be meters. Spotter desires fuze CVT in effect.
4	SHIP	(READ BACK)...OUT	
5	SHIP	GUN-TARGET LINE 4800 READY 16...OVER	
6	SPOTTER	GUN-TARGET LINE 4800 READY 16...BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	RIGHT 50 ADD 400 ...OVER	
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	

Figure A-11. Engagement of New Targets (Sheet 1 of 3)

SERIAL	FROM	VOICE	REMARKS
12	SPOTTER	NEW TARGET TARGET NUMBER AF0012 FROM LAST SALVO DIRECTION 2600 LEFT 400 DROP 600 TRUCK CONVOY AT MY COMMAND...OVER	Spotter sees another target (AF0012) that he wishes to engage while simultaneously engaging the original target (AF0011). To indicate that he wishes to engage both targets simultaneously, he uses the words “New target.” The location of the new target is indicated using any of the three standard methods of target location.
13	SHIP	(READ BACK)...OUT	
14	SHIP	12 GUN-TARGET LINE 5000 READY 16...OVER	Since the ship is now firing at two different targets, it must preface all transmissions with the target number. (To reduce the length of the transmission, only the last two digits of the target number may be used.)
15	SPOTTER	(READ BACK) 12...FIRE...OVER	
16	SHIP	12 FIRE...OUT	
17	SHIP	12 SHOT...SPLASH...OUT	
18	SPOTTER	11 DROP 200...BREAK 12 LEFT 50 DROP 400 ...OVER	Since the spotter is correcting the fall of shot onto two different targets, he must preface all transmissions with the target number. (To reduce the length of the transmission, only the last two digits of the target number may be used.)
19	SHIP	(READ BACK)...OUT	
20	SHIP	11 SHOT...SPLASH...OUT	
21	SPOTTER	11 ADD 50 5 SALVOS FIRE FOR EFFECT...OVER	
22	SHIP	(READ BACK)...OUT	
23	SHIP	12 READY...OVER	
24	SPOTTER	12 READY...BREAK... FIRE...OVER	
25	SHIP	12...FIRE...OUT	

Figure A-11. Engagement of New Targets (Sheet 2 of 3)

SERIAL	FROM	VOICE	REMARKS
26	SHIP	12 SHOT...SPLASH ...OUT	
27	SHIP	11 SHOT...SPLASH ...BREAK 11 ROUNDS COMPLETE...OVER	
28	SPOTTER	11 ROUNDS COMPLETE 11 END OF MISSION...OVER	At this point the spotter may end the mission for target number AF0011 in order to free the ship for another target.
29	SHIP	11 END OF MISSION...OUT	Target AF0012 is now the only target being engaged so it is no longer necessary to preface orders with target numbers. Spotter may also give Target AF0011 damage assessment now.
30	SPOTTER	ADD 100, 6 SALVOS FIRE FOR EFFECT...OVER	
31	SHIP	(READ BACK)...OUT	
32	SHIP	READY...OVER	
33	SPOTTER	READY...BREAK...FIRE...OV ER	
34	SHIP	FIRE...OUT	
35	SHIP	SHOT...SPLASH...BREAK ROUNDS COMPLETE...OVER	
36	SPOTTER	ROUNDS COMPLETE...OUT	
37	SPOTTER	12 END OF MISSION TRUCK CONVOY DISPERSED 11 END OF MISSION TROOPS DISPERSED...OVER	Spotter ends the mission and gives damage assessment for both targets. (Damage assessment for one target is omitted if already sent.)
38	SHIP	(READ BACK)...OUT	

Figure A-11. Engagement of New Targets (Sheet 3 of 3)

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0013...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0013...OUT	
3	SPOTTER	GRID 129871 ALTITUDE 80 DIRECTION 1620 RIVER CROSSING CONTINUOUS ILLUMINATION ...OVER	Grid coordinates. Altitude is understood as meters. direction is understood as mils grid, method of control is understood to be “Spotter adjust.
4	SHIP	(READ BACK)...OUT	
5	SHIP	LINE OF FIRE 1850 READY 36....OVER	Line of fire is understood to be mils grid.
6	SPOTTER	LINE OF FIRE 1850 READY 36...BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	RIGHT 200, ADD 400 UP 100...OVER	
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	
12	SPOTTER	DROP 200...OVER	
13	SHIP	(READ BACK)...OUT	
14	SHIP	SHOT...SPLASH...OUT	
15	SPOTTER	10 SALVOS FIRE FOR EFFECT....OVER	By not specifying the interval of sustained fire, the spotter has acknowledged that he would like the standard interval for the ammunition in use.
16	SHIP	(READ BACK)...OUT	
17	SHIP	SHOT...SPLASH...OUT	
18	SHIP	ROUNDS COMPLETE...OVER	
19	SPOTTER	ROUNDS COMPLETE...OUT	
20	SPOTTER	END OF MISSION LIGHT ACTIVITY TROOPS IN OPEN ENGAGED WITH SMALL ARMS FIRE...OVER	
21	SHIP	(READ BACK)...OUT	

Figure A-12. Continuous Illumination

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0015...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0015...OUT	
3	SPOTTER	GRID 465718 ALTITUDE 150 DIRECTION 216 DEGREES GRID COMPANY AREA CONTINUOUS ILLUMINATION ...OVER	Grid coordinates. Altitude is understood as meters. Unit of measure for direction is transmitted, as it differs from standard. Method of control is understood to be “Spotter adjust.”
4	SHIP	(READ BACK)...OUT	
5	SHIP	LINE OF FIRE 160 DEGREES GRID READY 42...OVER	Ship provides gun-target line (GTL) in same units of measure as spotter’s direction (degrees grid).
6	SPOTTER	LINE OF FIRE 160 DEGREES GRID READY 42...BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0016 GRID 480720 ALTITUDE 200 DIRECTION 219 DEGREES GRID SUSPECTED TROOP MOVEMENT CONTINUOUS ILLUMINATION ...OVER	Spotter has acquired another target that requires illuminating urgently. To save time, he sends orders for its engagement during the time-of-flight of the shell fired at the first target.
10	SHIP	(READ BACK)...OUT	
11	SHIP	TARGET 16 LINE OF FIRE 165 DEGREES GRID READY 39...OVER	Since two fire missions are now being fired simultaneously, all transmissions will be prefaced with the last two digits of the target number to which the transmission applies.
12	SPOTTER	16 LINE OF FIRE 165 DEGREES GRID READY 39...BREAK... FIRE...OVER	
13	SHIP	16 FIRE...OUT	
14	SHIP	16 SHOT...OUT	Splash is not transmitted by the ship to allow the spotter to send corrections for the other target. Note: Spotter will only send corrections on one target after shot has been received on the other target.
15	SPOTTER	15 RIGHT 300 UP 200...OVER	

Figure A-13. Simultaneous Illumination of Two Targets (Sheet 1 of 2)

SERIAL	FROM	VOICE	REMARKS
16	SHIP	(READ BACK)...OUT	
17	SHIP	15 SHOT...OUT	
18	SPOTTER	16 LEFT 400 ADD 400...OVER	
19	SHIP	(READ BACK)...OUT	
20	SHIP	16 SHOT...OUT	
21	SPOTTER	15 DOWN 50...OVER	
22	SHIP	(READ BACK)...OUT	
23	SHIP	15 SHOT...OUT	
24	SPOTTER	16 DROP 200 DOWN 50...OVER	
25	SHIP	(READ BACK)...OUT	
26	SHIP	16 SHOT...OUT	
27	SPOTTER	15 10 SALVOS FIRE FOR EFFECT...OVER	
28	SHIP	(READ BACK)...OUT	
29	SHIP	15 SHOT...OUT	
30	SHIP	15 ROUNDS COMPLETE ...OVER	
31	SPOTTER	15 ROUNDS COMPLETE ...OUT	
32	SPOTTER	16 10 SALVOS FIRE FOR EFFECT...OVER	
33	SHIP	(READ BACK)...OUT	
34	SHIP	16 SHOT...OUT	
35	SHIP	16 ROUNDS COMPLETE ...OVER	
36	SPOTTER	16 ROUNDS COMPLETE ...OUT	
37	SPOTTER	15 END OF MISSION TROOPS ENGAGED WITH MORTARS...OVER	
38	SHIP	(READ BACK)...OUT	
39	SPOTTER	ADD 200 REPEAT...OVER	Once one of the fire missions is ended, there is no longer a need to preface transmissions with target numbers.
40	SHIP	(READ BACK)...OUT	
41	SHIP	SHOT...SPLASH...OUT	
42	SHIP	ROUNDS COMPLETE...OVER	
43	SPOTTER	ROUNDS COMPLETE...OUT	
44	SPOTTER	END OF MISSION NO ACTIVITY DETECTED...OVER	
45	SHIP	(READ BACK)...OUT	

Figure A-13. Simultaneous Illumination of Two Targets (Sheet 2 of 2)

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER AF0014...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER AF0014...OUT	
3	SPOTTER	GRID 016427 ALTITUDE 60 DIRECTION 0190 SUSPECTED PATROL ACTIVITY COORDINATED ILLUMINATION MARK WILL BE GIVEN ...OVER	Grid coordinates. Altitude is understood as meters. Direction is understood as mils grid. Method of control is understood to be “Spotter adjust.” The spotter will receive HE/PD as ammunition as it is standard and he did not specify otherwise.
4	SHIP	(READ BACK)...OUT	
5	SHIP	LINE OF FIRE 2430 READY 26...OVER	Line of fire is understood as mils grid.
6	SPOTTER	LINE OF FIRE 2430 READY 26...BREAK... FIRE...OVER	
7	SHIP	FIRE...OUT	
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	RIGHT 200 ADD 200 DOWN 50 ...OVER	
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	
12	SPOTTER	COORDINATED ILLUMINATION STANDARD INTERVAL...OVER	Spotter alerts ship to the fact that the next salvo will be HE coordinated with illumination.
13	SHIP	(READ BACK)...OUT	
14	SHIP	GUN-TARGET LINE 2450 READY 23...OVER	
15	SPOTTER	GUN-TARGET LINE 2450 READY 23...BREAK... FIRE...OVER	
16	SHIP	FIRE...OUT	
17	SHIP	SHOT...SPLASH...OUT	Shot is for illumination shell. Splash is for HE shell. HE fired at a standard interval of 20 seconds after the illumination.
18	SPOTTER	ILLUMINATION, RIGHT 200 HE RIGHT 60 ADD 400 RETARD 10 ...OVER	Spotter orders interval between illumination and HE to be increased by 10 seconds. Corrections must be prefaced by HE or illumination as appropriate.
19	SHIP	(READ BACK)...OUT	

Figure A-14. Coordinated Illumination (Sheet 1 of 2)

SERIAL	FROM	VOICE	REMARKS
20	SHIP	SHOT...SPLASH...OUT	
21	SPOTTER	HE DROP 200...OVER	
22	SHIP	(READ BACK)...OUT	
23	SHIP	SHOT...SPLASH...OUT	
24	SPOTTER	HE LEFT 30 DROP 100 6 SALVOS FIRE FOR EFFECT...OVER	
25	SHIP	(READ BACK)...OUT	Continuous illumination is provided by the ship during fire for effect without further orders from the spotter.
26	SHIP	SHOT...SPLASH...OUT	
27	SHIP	HE ROUNDS COMPLETE...OVER	
28	SPOTTER	HE ROUNDS COMPLETE...OUT	
29	SPOTTER	END OF MISSION PATROL WITHDRAWN WITH CASUALTIES...OVER	
30	SHIP	(READ BACK)...OUT	

Figure A-14. Coordinated Illumination (Sheet 2 of 2)

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E FIRE MISSION TARGET NUMBER XJ0014...OVER	Transmission is broken after target number.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P FIRE MISSION TARGET NUMBER XJ0015...OUT	
3	SPOTTER	GRID 016427 ALTITUDE 60 DIRECTION 0190 SUSPECTED PATROL ACTIVITY COORDINATED ILLUMINATION ...OVER	Grid coordinates. Altitude is understood as meters. Direction is understood as mils grid. Method of control is understood to be “Spotter adjust.”
4	SHIP	(READ BACK)...OUT	
5	SHIP	LINE OF FIRE 2430 READY 26...OVER	Line of fire is understood as mils grid.
6	SPOTTER	LINE OF FIRE 2430 READY 26 FIRE...OVER	
7	SHIP	FIRE...OUT	

Figure A-15. Coordinated Illumination—Standard Interval (Sheet 1 of 2)

SERIAL	FROM	VOICE	REMARKS
8	SHIP	SHOT...SPLASH...OUT	
9	SPOTTER	RIGHT 200 ADD 200 DOWN 50...OVER	
10	SHIP	(READ BACK)...OUT	
11	SHIP	SHOT...SPLASH...OUT	
12	SPOTTER	COORDINATED ILLUMINATION STANDARD INTERVAL ...OVER	Spotter alerts the ship to the fact that the next round will be HE coordinated with illumination.
13	SHIP	(READ BACK)...OUT	
14	SHIP	GUN TARGET LINE 2450 READY 25 ...OVER	
15	SPOTTER	GUN TARGET LINE 2450 READY 25 ...FIRE...OVER	
16	SHIP	FIRE...OUT	
17	SHIP	SHOT...SPLASH...OUT	Shot is for illumination. Splash is for HE. HE fired at standard interval of 20 seconds after the illumination.
18	SPOTTER	ILLUMINATION RIGHT 200 HE RIGHT 300 DROP 400 RETARD 10	Spotter orders interval between illumination and HE to be increased by 10 seconds. Corrections prefixed by HE or illumination as appropriate.
19	SHIP	(READ BACK)...OUT	
20	SHIP	SHOT...SPLASH...OUT	
21	SPOTTER	HE DROP 200...OVER	
22	SHIP	(READ BACK)...OUT	
23	SHIP	SHOT...SPLASH...OUT	
24	SPOTTER	HE LEFT 30 DROP 100 SIX SALVOS FIRE FOR EFFECT...OVER	
25	SHIP	(READ BACK)...OUT	
26	SHIP	SHOT...SPLASH...OUT	Continuous illumination is provided during fire for effect without command from the spotter.
27	SHIP	HE ROUNDS COMPLETE...OVER	
28	SPOTTER	(READ BACK)...OUT	
29	SPOTTER	END OF MISSION PATROL WITHDRAWN WITH CASULTIES ...OVER	
30	SHIP	(READ BACK)...OUT	

Figure A-15. Coordinated Illumination—Standard Interval (Sheet 2 of 2)

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E SEAD FIRE MISSION TARGET NUMBER AF0015...OVER	First transmission contains “SEAD” to inform the support ship that fires will be coordinated with an air strike.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P SEAD FIRE MISSION TARGET NUMBER AF0015...OUT	
3	SPOTTER	SUPPRESSION GRID 789456 ALTITUDE 60 ANTIAIRCRAFT SITE TIME ON TARGET 0915 MINUS 2 THROUGH PLUS 1...OVER	Grid method is used to expedite procedures aboard ship. “Direction” is omitted as spotting is not required. Spotter requests standard one gun, HE/CVT, sustained fire, 10-second interval, with salvos impacting from 0913 through 0916.
4	SHIP	(READ BACK)...OUT	The forward air controller also passes the CAS time on target to the aircraft.
5	SHIP	GUN-TARGET LINE 1420 SUMMIT 1200 FEET READY 16...OVER	Ship reports normal information prior to opening fire. Summit is included as the mission involves aircraft. Ship fires initial salvo timed to impact at 0913 (2 minutes prior to CAS time on target). Ship continues sustained fire for 3 minutes at 10 second interval with the last salvo impacting at 0916.
6	SPOTTER	(READ BACK)...OUT	
7	SHIP	SHOT...SPLASH...OUT ROUNDS COMPLETE...OVER	
8	SPOTTER	ROUNDS COMPLETE... END OF MISSION...OVER	
9	SHIP	(READ BACK)...OUT	

Figure A-16. SEAD Engagement With Suppression Rounds

SERIAL	FROM	VOICE	REMARKS
1	ALLOTTED SPOTTER	Y2P THIS IS C5E SEAD FIRE MISSION TARGET NUMBER AF1016...OVER	First transmission contains “SEAD” to inform the support ship that fires will be coordinated with an air strike.
2	NAVAL GUNFIRE SHIP	C5E THIS IS Y2P SEAD FIRE MISSION TARGET NUMBER AF1016...OUT	
3	SPOTTER	SUPPRESSION GRID 765567 ALTITUDE 80 SAM SITE MARK GRID 773565 ALTITUDE 55 CAS TIME TO TARGET 10 PLUS 00 INTERRUPTED...OVER	Grid method is used to expedite procedures aboard ship. “Direction” is omitted as spotting is not required. Spotter requests standard one gun, HE/CVT, sustained suppression fire, at 10-second intervals, with salvos impacting from 1 minute prior to CAS time on target and one gun, WP, impacting at 30 seconds prior to CAS time on target.
4	SHIP	(READ BACK)...OUT	
5	SPOTTER	CAS TIME ON TARGET 10 PLUS 00 STANDBY...HACK...OVER	Timing is started at the hack. The forward air controller also passes the time hack to the aircraft. The word “hack,” is used only to initiate or acknowledge the hack. Ship reports normal information prior to opening fire. Summit is included for aircraft coordination.
6	SHIP	CAS TIME TO TARGET 10 PLUS 00 ROGER...OUT	
7	SHIP	SUPPRESSION GUN-TARGET LINE 1140 SUMMIT 900 FEET READY 10...OVER	
8	SPOTTER	(READ BACK)...OUT	
9	SHIP	MARK LINE OF FIRE 1290 SUMMIT 1100 FEET READY 12...OVER	
10	SPOTTER	(READ BACK)...OUT	
11	SHIP	SUPPRESSION SHOT... SPLASH...OUT	Ship fires such that initial suppression round impacts 1 minute prior to CAS time on target (i.e., initial aircraft delivered ordnance impacts) and stops firing so last round impacts 30 seconds prior to CAS time to target. The marking round is fired to impact 30 seconds prior to the CAS time to target.
12	SHIP	MARK SHOT... SPLASH...OUT	
13	SHIP	ROUNDS COMPLETE...OVER	
14	SPOTTER	ROUNDS COMPLETE...OUT	
15	SPOTTER	END OF MISSION...OVER	
16	SHIP	(READ BACK)...OUT	

Figure A-17. SEAD Engagement With Suppression and Marking Rounds

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ANNEX B Artillery Fireplan (AB 545)

Artillery Fire Plan Proforma

AB 545
Revised 8/90

Fire Plan		Supporting		Originator		Modifications by	
Superimposed		H Hour		Sheet		of	Date/Time Group

Target Information

	(a)	(b)	(c)	(d)	(e)
Line	Target No.	Description	Location	Alt	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Schedule

	(f)	(g)	(h)
Line	Regt or Fmn	Fire Units	Timings
1			
2			
3			
4			
5			
6			
7			
8			
(j)	Remarks		

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ANNEX C Naval Fire Support Ship Status Code: November Code

Note: To be used on the Spotting Net between the radio operator and spotter.

N	01	Unable to fire for approximately ___ minutes due to:	A. Gun defect B. System defect C. Nav difficulties D. Foul range E. Misfire F. Conducting windfind
N	02	Unable to fire indefinitely due to:	A. Gun defect B. System defect C. Navigation difficulties D. Foul range
N	03	Able to fire on ___ guns. (See Note 3)	
N	04	Unable to achieve crest clearance on target number ___.	
N	05	Rounds available for serial.	A. HE B. Starshell C. AAP/NFS (flash) D. SUP/PRAC/INERT E. Smoke (U.S. only)
N	06	Initial salvo ___ (___ yards). (See Note 4.)	A. Within 200 yards B. Within 300 yards C. Within 400 yards D. Over 400 yards
N	07	Percent of rounds in target area at FFE.	A. Over 90 percent B. Between 90 to 75 percent C. Between 75 to 50 percent D. Below 50 percent
N	08	Initial time on target (TOT) (___ seconds).	

Notes:

1. Under normal circumstances NUCO would be used to encode the appropriate line. Example: A ship unable to fire for 15 minutes due to a system defect would signal

NOVEMBER NUCO AW CD UNNUCO OVER

2. When the fault is rectified the ship would report:

CANCEL NOVEMBER NUCO AW CD UNNUCO then either:

READY, GUN TARGET LINE ETC. (For the opening salvo) or:

READY, (For subsequent salvos).

3. N 03 indicates a reduction of capability for a ship with more than one barrel.

4. For a coordinated illumination mission this is to be the error of the first salvo fired.

ANNEX D Recommended Projectiles and Fuzes for Shore Targets

TARGET	SHIP'S GUNS	RECOMMENDED PROJECTILE AND FUZE	NOTE
Heavy concrete fortifications	3-inch to 5-inch	HE (PD, delay)	1
Light concrete or log and/ or earth fortifications.	3-inch or 5-inch	HE (PD, delay)	2
Dispersed targets in open, such as parked aircraft, vehicles, personnel, light huts, etc.	3-inch to 5-inch	HE (PD or CVT), WP (PD or MT)	3, 4 3
Large targets in light construction, such as oil tanks, hangars, factory buildings, etc.	3-inch to 5-inch	HE (PD) WP (PD)	
Landing field runways and roads, paved and unpaved	3-inch to 5-inch	HE (PD)	5

NOTES:

1. Projectile will not cause appreciable damage except to exposed personnel and equipment in proximity to burst.

2. Projectile is not particularly effective against this target but is recommended, since a nondelay fuzed projectile would be less effective.

3. CVT or VT fuzes are preferred over MT fuzes for low-level airburst.

4. VT fuzes employed in long-range bombardment must be of the nonself-destruct type.

5. In order to avoid ricochets with fuzed projectiles, the angle of fall should be not less than 25°. Nondelay fuzed projectiles 6-inch or smaller are not expected to be very effective against these targets.

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LEXICON

SECTION I—GLOSSARY

Terms and definitions from AAP-06 are in italics.

add. 1. A fire correction term used by the spotter in adjusting fire to indicate that an increase in range along the spotting line is desired. The unit of measurement is understood to be meters. See "drop" and "spotting line." 2. A target location term used by the spotter to indicate a shift of increased range from a known point to the target along the spotter's reported direction, when utilizing the shift-from-a-known-point method of target location. The unit of measure is understood to be meters (to the nearest 100 meters). See "drop" and "shift from a known point."

adjustment. Process used to place the MPI or mean point of burst on the target.

advance. An order to make HE burst earlier in relation to the preceding starshell. The term "advance" will be followed by the interval in seconds. See "retard."

air. In naval fire support, a spotting, or an observation, by a spotter or an observer to indicate that a burst or group of bursts occurred before impact.

airburst. Bursting of a shell in the air with resulting spray of fragments.

altitude. *The vertical distance of a level, a point, or an object considered as a point measured from mean sea level.* In NFS, the standard unit of measure for land features is meters. Feet may be used and will be measured to the nearest 20 feet.

arbitrary reference line (ARL). A fixed reference line on the ground that passes through the target and one or more prominent terrain features, or is parallel to a straight feature (e.g., railroad tracks).

area target. *A target consisting of an area rather than a single point;* e.g., troops in the open, an artillery battery, an ammunition dump.

at my command. An order used to modify any one of the three methods of control when the spotter wishes to control the moment of firing. The ship reports "Ready" and awaits the spotter's order to fire each salvo. "At my command" is rescinded if or when the spotter transmits "Cancel at my command."

attitude. Angular measurement from a reference north to an imaginary line that describes the long axis of a rectangular or linear target. It is measured in mils to the nearest 10 mils or degrees to the nearest degree. The unit of measurement and reference north are understood to be mils grid unless otherwise specified.

bracketing. *A method of adjusting fire in which a bracket is established by obtaining an over and a short along the spotting line, and then, successively splitting the bracket in half until a target is hit or desired bracket is obtained.*

call fire. Fire delivered on a specific target in response to a request from a supported unit. See "opportunity fire" and "prearranged fire."

call for fire. *A request for fire containing data necessary for obtaining the required fire on a target.*

cancel. *In artillery and naval fire support, the term cancel, when coupled with a previous order, other than an order for a quantity or type of ammunition, rescinds that order*. For example, "Cancel check firing," "Cancel danger close."

cannot observe. A special situation in which the spotter and ship cannot observe or adjust fire.

cardinal/intercardinal direction. A direction in line with a cardinal or intercardinal point (i.e., N, E, S, W or NE, SE, SW, NW).

check firing. An order used to interrupt firing temporarily. Fire control solutions continue to be generated.

check solution. An order to the ship to check the fire control solution. Generally sent by the spotter when an excessive salvo-to-salvo error or trend is observed.

continuous illumination. Sufficient volume of fire of illuminating projectiles to keep an area continuously illuminated.

coordinated illumination. A technique in which the firing of illuminating and HE projectiles is coordinated to provide illumination of the target and surrounding area only at the time required for spotting and adjusting the HE fire.

coordinates. Numbers and/or letters that designate a location on a gridded map, photograph, or chart by means of a coordinate system.

correction. 1. A communication proword to indicate "An error has been made in this transmission. Transmission will continue with the last word correctly transmitted." 2. An order to effect an adjustment of fire.

counterbattery. Fire specifically directed to silence fire from active enemy weapons.

counterfire. *Fire intended to destroy or neutralize enemy weapons*.

creeping. A method of adjusting fire in which successive adjustments are moved closer to the target in increments of 100 meters. Used in "danger close" procedure.

danger close. The notification from the spotter or coordination agency to the support platform that the fall of shot may endanger friendly troops.

dark star. An illumination round that fails to properly ignite or fails to properly deploy.

delay. A report indicating that the ship is not ready to fire (normally of a temporary nature). It should include an estimate of the number of minutes that the ship will be unable to fire.

destruction fire. *In artillery, fire delivered for the purpose of destroying a point target.*

direct fire. Gunfire directed at a target that is visible to the aimer.

direction. The direction of the spotting line is an angular measurement from a reference north to an imaginary line that passes through the target. Note: It is measured in degrees (to the nearest degree) or mils (to the nearest 10 mils). The unit of measurement and reference north is understood to be mils grid, unless otherwise specified. The unit of measurement (mils or degrees) must remain the same throughout the engagement.

dispersion. The scattered pattern of hits around the MPI of projectiles fired from one gun or battery of guns under identical conditions.

distance. A target-location term used by the spotter to indicate range from his position to the target along the reported direction, when utilizing the polar-plot method of target location. The unit of measurement is understood to be meters (to the nearest 100 meters). See "polar plot."

doubtful. In naval fire support, a term used by an observer or spotter to indicate that he was unable to determine the difference in range between the target and a round or rounds.

down. 1. A fire-correction term used by spotters in adjusting airburst fire with fuze time to indicate that a decrease in the height of burst is desired. The unit of measurement is understood to be meters. See "up." 2. *(U.K. and U.S.)* A fire-correction term used by the spotter in adjusting fire to indicate that a decrease in the height of an impact burst is desired. On some terrain, this is more effective than an adjustment in range along the GTL. The unit of measurement is understood to be meters. See "up." 3. A target-location term used by the spotter to transmit a decrease in altitude from a known point to the target, when utilizing the shift-from-a-known-point method of target location. The standard unit of measurement is meters (to the nearest 5 meters). See "up." 4. A target-location term used by the spotter to transmit a decrease in altitude from his location to the target, when utilizing the polar-plot method of target location. The standard unit of measurement is meters (to the nearest 5 meters). See "up."

drop. 1. A fire-correction term used by the spotter in adjusting fire to indicate that a decrease in range along the spotting line is desired. The unit of measurement is understood to be meters. See "add" and "spotting line." 2. A target-location term used by the spotter to indicate a shift of decreased range from a known point to the target along the spotter's reported direction, when utilizing the shift-from-a-known-point method of target location. The unit of measure is understood to be meters (to the nearest 100 meters). See "add" and "shift from a known point."

end of mission. *In artillery and naval fire support an order given to terminate firing on a specific target. The fire control solution will cease to be generated.*

fire. *The command given to discharge weapon(s).*

fire for effect (FFE). A method of control given when: 1. The MPI of delivered fire is within the desired distance of the target or adjusting point. 2. The ship delivers the requested volume of fire at the target without adjustment (may be observed or unobserved fire).

fire mission. 1. Command used to alert personnel of the ship and to indicate that the message following is a call for fire. *2. Specific assignment given to a fire unit as part of a definite plan. 3. Order used to abort the weapon/battery area and indicate that the message following is a call for fire.*

fresh target. A procedure requested by the spotter to the firing ship to indicate that fire will be shifted from the last round fired (on the old target) to a new target by corrections applied to the computer solution being generated.

fuze CVT. Type of fuze action designed to produce an airburst using a radio transceiver. It has a time arming feature to permit safe firing near friendly lines.

fuze delay. Type of fuze action designed to effect penetration prior to detonation.

fuze quick. Type of fuze action designed to achieve instantaneous detonation upon impact.

fuze time. Type of fuze action designed to produce an airburst using a mechanical or electronic time mechanism.

fuze VT. Type of fuze action designed to produce an airburst using a radio transceiver.

graze. In naval fire support, a spotting, or an observation, by a spotter or an observer to indicate that all bursts occurred on impact.

grid coordinates. 1. Numbers of a coordinated system that designate a point on a gridded map, photograph, or chart. The term "grid" is a shortened form. 2. A target-location method whereby the spotter locates his target by the actual grid coordinates of the point on a military map.

gun-target line (GTL). *An imaginary straight line from gun to target.* Note: Direction must be specified. See "direction" and "reference line."

hack. The command used to begin timing or synchronize time.

harassing fire. *Fire designed to disturb the rest of the enemy troops, to curtail movement and, by threat of losses, to lower morale.*

indirect fire. *Fire delivered at a target which cannot be seen by the aimer.*

interdiction fire. *Fire placed on an area or point to prevent the enemy from using the area or point.*

left. 1. A fire-correction term used by the spotter in adjusting fire to indicate that a movement of the point of impact to the left and perpendicular to the spotting line is desired. The unit of measurement is understood to be meters (to the nearest 10 meters). See "right" and "spotting line." 2. A target-location term used by the spotter to indicate a left perpendicular shift from the direction to a known point, when utilizing the shift-from-a-known- point method of target location. The unit of measurement is understood to be meters (to the nearest 10 meters). See "right" and "shift from a known point."

line. In naval fire support, a spotting or an observation, used by a spotter or an observer to indicate that a burst(s) occurred on the spotting line.

line of fire (LOF). A straight line from gun to flare deployment point of the illumination round. The unit of measurement will be the same as used for direction in the call for fire.

line spread. See "spread."

lost. Indicates that last rounds fired were not seen by the observer.

mark. *In artillery and naval fire support: a. to call for fire on a specified location in order to orient the observer/spotter or to indicate targets. b. to report the instant of optimum light on the target produced by illumination shells.*

marker. A special projectile (usually WP or smoke) that gives a good visual indication of its bursting point, used either as an aid to spotting or to mark a particular point on the terrain so that it may easily be identified by other observers.

mass. To bring the fire of two or more ships on the same target.

mean point of impact (MPI) (or burst). *The point whose coordinates are the arithmetic means of the coordinates of the separate points of impact/burst of a finite number of projectiles fired or released at the same aiming point under a given set of conditions.*

mil. 1. The unit of angular measurement of the angle subtended by a width of one linear unit at a distance of 1,000 like linear units. 2. The unit of angular measurement based on the angle subtended by 1/6400 of the circumference of a circle.

mixed. Indicates that a multigun salvo contains both air and graze bursts.

neglect. Term used by a ship to indicate that the last salvo was fired with incorrect settings.

neutralization fire. Fire that is delivered to hamper and interrupt movement and/or the firing of weapons. Destruction of enemy personnel and weapons is not the primary consideration.

new target. A procedure requested by the spotter to indicate that he desires to engage two targets simultaneously in a single fire mission. New target procedures can only be used with ships that have fire control systems that are capable of computing two gun-order solutions simultaneously.

observed fire. *Fire for which the point of impact or burst can be seen by an observer.*

observer-target line (OTL). *An imaginary straight line from the spotter to the target.* Note: Direction must be specified. See "direction" and "reference line."

officer in tactical command (OTC) (naval term). *In maritime usage, the senior officer present eligible to assume command, or the officer to whom he has delegated tactical command.*

opportunity fire. Fire delivered without any formal planning or supported unit request on newly discovered or transitory targets. See "call fire" and "prearranged fire."

over. In naval fire support, a spotting, or an observation, used by a spotter or an observer to indicate that a burst(s) occurred beyond the target in relation to the spotting line.

polar plot. A target-location method whereby the spotter locates the target in relation to his position by providing a direction, distance, and vertical shift (if required) to the target.

prearranged fire. *Fire that is formally planned and executed against targets or target areas of known locations. Such fire is usually planned well in advance and is executed at a predetermined time or during a predetermined period of time.* See "call fire" and "opportunity fire."

range spread. See "spread."

ready. Indicates that the ship is ready to fire. "Ready (time of flight in seconds)" is given when the ship is ready to fire the first salvo of the mission and is awaiting the spotter's command to fire. Before subsequent salvos, "Ready" (without giving the time of flight) is transmitted by the ship only: 1. If "At my command" has been ordered by the spotter. 2. To end a "Delay" by the ship. 3. To indicate that a "Check solution" has been accomplished by the ship.

record as target. *In artillery and naval fire support, the order used to denote that the target is to be recorded for future engagement or reference.*

reduced charge. A special propellant charge used to permit high-angle fire at targets inaccessible with normal trajectories. It also can be used for illumination missions to prevent ripped or burned chutes.

reference line. An arbitrary line to which corrections by the spotter are related. Direction must be specified. See "direction" and "spotting line."

reference point. *A prominent, easily located point in the terrain.*

repeat. *In artillery and naval fire support, an order to fire again the same number of rounds with the same method of fire.*

retard. An order to make the HE burst later in relation to the preceding starshell. The term "retard" will be followed by the interval in seconds. See "advance."

right. 1. A fire-correction term used by the spotter in adjusting fire to indicate that a movement of the point of impact to the right and perpendicular to the spotting line is desired. The unit of measurement is understood to be meters (to the nearest 10 meters). See "left" and "spotting line." 2. A target-location term used by the spotter to indicate a right perpendicular shift from the direction to a known point, when utilizing the shift-from-a-known-point method of target location. The unit of measurement is understood to be meters (to the nearest 10 meters). See "left" and "shift from a known point."

rounds complete. *In artillery and naval fire support, the procedural term used to indicate that all the rounds ordered at fire for effect have been fired.*

salvo. One shot fired at a target simultaneously by all or part of the guns in a battery.

shift from a known point. A target location method whereby the spotter locates the target in relation to a known point by means of lateral, range, and vertical shifts from the known point.

ship adjust. A method of control used when the spotter desires the ship to engage a target using direct fire and to adjust its own fire.

short. *In artillery and naval fire support, a spotting, or an observation, used by an observer to indicate that a burst(s) occurred short of the target in relation to the spotting line.*

shot. A report by the ship indicating the moment of firing.

splash. A report transmitted by the ship 5 seconds before the estimated time of detonation of a salvo.

spot. *To determine by observation, deviations of ordnance from the target for the purpose of supplying necessary information for the adjustment of fire.*

spotter. Naval gunfire personnel are commonly termed "spotters," which is a concise name and differentiates them from artillery "observers."

spotter adjust. A method of control in which the spotter controls the mission and is responsible for the adjustment of the MPI onto the target and for requesting the appropriate number of guns and salvos in FFE.

spotting line. The GTL, OTL, or other reference line used by the spotter in making spots and corrections. The direction must be specified. See "direction" and "reference line."

spread. The range spread of a salvo is the distance between the round falling or bursting at the greatest distance from the firing point and the round falling or bursting at the shortest distance, excluding wild rounds. Similarly, the line spread is that at right angles to the trajectory.

spreading fire. Indicates that FFE is about to be distributed over an area by spotting corrections.

straddle. A multigun salvo, some rounds of which fall short and some of which fall beyond the target.

summit. Highest altitude above mean sea level that a projectile reaches in its trajectory from the gun to the target. Units of measurement must be specified.

target. 1. A geographic area, complex, or installation planned for potential engagement by military forces. 2. A spotting made by a spotter when the salvo has effect on the target.

target number. 1. Preparatory command, indicating that a target is about to be assigned. 2. A reference number assigned to a target.

time of flight. Time, in seconds, from the instant a projectile leaves the muzzle of a gun to the instant it strikes or bursts.

time on target (TOT). The method of firing on a target in which various units so time their fire as to assure that all projectiles reach the target simultaneously, usually at a specified time.

trend. The straying of the fall of shot from salvo to salvo, such as might be caused by incorrect ship's speed settings on the fire control computer.

unobserved fire. *Fire for which points of impact or burst are not observed.*

up. 1. A fire-correction term used by the spotter in adjusting fire with fuze time to indicate that an increase in the height of burst is desired. The unit of measurement is understood to be meters. See "down." 2. *(U.K. and U.S.)* A fire-correction term used by the spotter in adjusting fire to indicate that an increase in the height of an impact burst is desired. On some terrain, this is more effective than adjustment in range along the GTL. The unit of measurement is understood to be meters. See "down." 3. A target-location term used by the spotter to transmit an increase in altitude from a known point to the target, when utilizing the shift-from-a-known-point method of target location. The standard unit of measurement is meters (to the nearest 5 meters). See "down." 4. A target-location term used by the spotter to transmit an increase in altitude from his location to the target, when utilizing the polar-plot method of target location. The standard unit of measurement is meters (to the nearest 5 meters). See "down."

will not fire. Indicates that the ship will not engage the target.

wrong. A proword used in radiotelephone procedure. Its use is modified in calls for fire. An error noted during read back is corrected by the word "wrong" followed by the correct version. The word "wrong" then is read back, along with the read back of the corrected version.

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SECTION II—LIST OF ACRONYMS AND ABBREVIATIONS

ACA	airspace coordination area
ACP	Allied communications publication
AMSH	Allied Military Security Changing Call Signs
ARL	arbitrary reference line
ATF	amphibious task force
ATP	Allied tactical publication
CAS	close air support
CATF	commander amphibious task force
CVT	controlled variable time
CW	continuous wave (Morse)
FFE	fire for effect
FSCC	fire support coordination centre
GPS	global positioning system
GTL	gun target line
HE	high explosive
HOB	height of burst
LOF	line of fire
MPI	mean point of impact
MT	mechanical time
NATO	North Atlantic Treaty Organization
NFS	naval fire support
NGF	naval gunfire
NGFO	naval gunfire forward observer
NGLO	naval gunfire liaison officer
OTC	officer in tactical command

OTL	observer-target line
PER	probable error range
SACC	supporting arms coordination centre
SEAD	suppression of enemy air defences

LIST OF EFFECTIVE PAGES

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OCT 2014	1-1 thru 1-18
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OCT 2014	C-1, C-2
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