AArtyP-1(A)

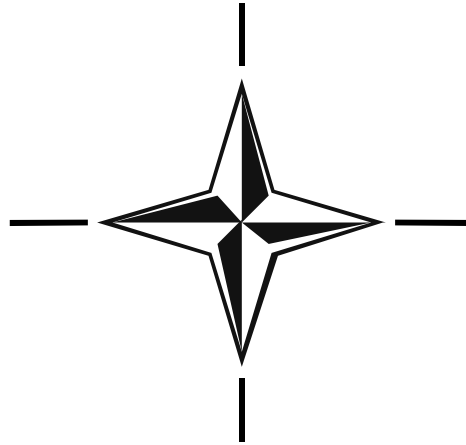# NORTH ATLANTIC TREATY ORGANIZATION

ORGANISATION DU TRAITE DE L'ATLANTIQUE NORD

AArtyP-1(A)

ARTILLERY PROCEDURES

March 2004

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AArtyP-1(A)

NORTH ATLANTIC TREATY ORGANIZATION

NATO STANDARDIZATION AGENCY (NSA)

NATO LETTER OF PROMULGATION

March 2004

1.   AArtyP-1(A) – ARTILLERY PROCEDURES is a NATO/PfP UNCLASSIFIED publication. The agreement of nations to use this publication is recorded in STANAG 2934.

2.   AArtyP-1(A) is effective on receipt. It supersedes AArtyP-1 which shall be destroyed in accordance with the local procedure for the destruction of documents

3.   AArtyP-1(A) is an editorial edition with the aim of correcting errors and obsolete information by inserting the right information and using a more rational approach to multi-national operations which would have been incorporated in change 8.

J. MAJ
Brigadier General, PLAR
Director, NSA

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FOREWORD AND EXPLANATORY NOTES
NATO STANDARDIZATION AGREEMENT
(STANAG)

AIM

1.   The aim of this document is to amend AArtyP(A). The change is editorial, with the aim of correcting errors and obsolete information by inserting the right information and using a more rational approach to multi-national operations.

AGREEMENT

2.   Participating Nations agree to use AArtyP-1(A) as a manual for NATO artillery units when operating together in order that the agreed procedures contained in it produce timely and effective artillery support to manoeuvre units.

DEFINITIONS

3.   **Ratification** is "The declaration by which a member nation formally accepts, with or without reservation, the contents of this Standardization Agreement".

4.   **Implementation** is "the fulfilment by a member nation of its obligations as specified in this Standardization Agreement".

5.   **Reservation** is "The stated qualification by a member nation that describes the part of this Standardization Agreement that it will not implement or will implement only with limitations.

NATION	NATIONAL IMPLEMENTING DOCUMENTS Note: AArtyP-1(A) is an implementing document, however most nations go further and include the contents in their national publications.
Belgium/ (B) Luxembourg (L)	G 350A, OP 1 (BE) Div, G 371, G373
Canada (CA)	B - GL - 371 - 003, B - GL - 371 - 004
Czech Republic (CZ)	*Ratification in progress*. (Dil – 1 –1).
Denmark (DK)	HRN 410 - 001, AArtyP-1(A)
France (FR)	*Ratification in progress.*
Germany (GE)	ZDv 3/101, HDv 260/100, AnwFE 266/100, AnwFE 267/220, AnwFE 267/500
Greece (GR)	AArtyP-1(A)
Hungary (HU)	*Ratification in progress.*
Italy (IT)	AArtyP-1(A)
Netherlands (NL)	Leidraad Vuursteun
Norway (NO)	AArtyP-1(A). UD-13, UD-14, UD-16, UD-17, UD-18
Poland (PL)	Regulaminy dzia a taktycznych artylerii (kompania wsparcia, dywizjon wsparcia bezpo redniego, ogoőlnego, pu k, brygada), podr czniki walki artylerii (pluton wysuni tych obsewatorow, pluton mo dzierzy, bateria artylerii, bteria artylerii rakietowej).
Portugal (PO)	*Ratification in progress.*
Spain (SP)	AArtyP-1(A) (Bi-lingual), R-3-5-1, OR5-301 Parts 1 & 2, OR5-305, RE5-307& M-3-6-4
Turkey (TU)	KKT 6-30, KKT 6-40, KKT 6-40A, KKT 6-20, KKT 6-2, KKT 6 -15
United Kingdom (UK)	AArtyP-1(A), AT. Vol. I Pams. 1 & 12, AT. Vol. II Pam. 13, AT. Vol. III Pam. 11 Pts 1 & 4, Sigs Comms in the Army Vol. 4, Pam 6, ATP-27(B)
United States (US)	FM 6 - 1, FM 6 - 20, FM 6 - 40, FM 6 - 15, FM 6 - 121, FM 6 - 30

CONTENTS

12. ARTILLERY DEPLOYMENT   CA

CHAPTER 1

INTRODUCTION

101.   This publication should be read in conjunction with AArtyP-5 (Artillery Tactical Doctrine).

102.   **Aim of AArtyP-1(A).** The aim of this publication is to detail the procedures agreed upon by NATO forces for use by their artillery units in order to produce timely and effective artillery support to manoeuvre units.

103.   **Scope of AArty P-1(A).** Owing to the wide variety of organizations and equipment within the NATO forces, this publication is concerned with fundamentals and those procedures likely to be used in multi-national operations. It does not, for the present, cover the complete range of technical artillery procedures.

104.   **Terms and Definitions.** Artillery terms and definitions of general military significance are contained in the NATO Glossary of Terms and Definitions (AAP-6). Artillery terms of a more specialized nature are in the NATO Artillery Glossary (AAP-38).

105.   **Bearings and Co-ordinates.** All references to mils are to the NATO mil (6400 mils in a circle). All co-ordinates will be given in the order of Eastings then Northings.

106.   **Associated Publications.** Related Allied Publications (APs) and Standardization Agreements (STANAGs) are contained in Annex A to this Chapter, it should be noted that:

   a.   NATO nations have concluded a wide range of agreements on various matters, and more are under negotiation. AAP-4 contains a full list of APs and STANAGs.

   b.   Most STANAGs are not circulated direct to units. Their contents are included in national and command instructions (e.g., training pamphlets, standing operating procedures and field manuals).

   c.   APs are STANAGs that have been converted to a book that can be used by units.
         This simplifies distribution and makes implementation much quicker. The following should be read in conjunction with this AP documents used in AArtyP-1 are annotated*:

TABLE OF RELATED ALLIED PUBLICATIONS AND STANAGs

Ser.	Allied Publication	STANAG	Title
1.	AAP-6*	3680	NATO Glossary of Terms and Definitions
2.	AAP-38[1]	2247	NATO Artillery Glossary
2.	ACP-122*		Communications Instructions Security.
3.	ACP-125*		Communications Instructions Radio-Telephone Procedures.
4.	APP-6	2019	Military Symbols for Land Based Systems .
5.	ATP-4	1034	Allied Spotting Procedures for Naval Gunfire Support.
6.	ATP-27	3982	Offensive Air Support Operations.
7.	ATP-33	3700	NATO Tactical Air Doctrine .
8.	ATP-35	2868	Land Force Tactical Doctrine.
9.	ATP-40	3805	Doctrine and Procedures for Air 5pace Control in Times of Crisis and War
10.	ATP-41	2904	Airmobile operations.
11.	ATP-50*	2990	Principles and Procedures for the Employment in Land Warfare of Scatterable Mines with a Limited Laid Life.
12.	AArtyP-5	2484	NATO Field Artillery Tactical Doctrine.
13.		1001	Standardized System of Designating Days and Hours in Relation to an Operation or Exercise.
14.		2014	Operation Orders, Warning orders and Administrative / Logistic orders.
15.		2020	Operational Situation Reports.
16.		2029	Method of Describing Ground Locations, Areas and Boundaries.
17.		2101	Principles and Procedures for Establishing Liaison.
18.		4044	Adoption of a Standard Atmosphere.
19.		4061*	Adoption of a Standard Ballistic Meteorological Message.
20.		4103*	Format for Request for Meteorological Messages for Ballistic and Special Purposes.
21.		4131*	Adoption of a Standard Character by Character Meteorological Message Format.
22.		4140*	Adoption of a Standard Target Acquisition Meteorological Message.
23.		5620*	Standard for the Inter-operability of ADP Fire Support Systems.
24.		5621*	Standard for the Inter-operability of NATO Land Combat Operations Systems.

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[1] A draft document, not yet ratified. AAP-38 replaces annex C(Glossary of Artillery and related terms and definitions.

CHAPTER 2

RADIOTELEPHONE PROCEDURES FOR THE CONDUCT OF ARTILLERY FIRE

SECTION I

GENERAL

201.   The passing of calls for fire by radiotelephone demands absolute accuracy and speed. Standardised radiotelephone procedures, correctly applied, increase communications security, decrease the possibility of confusion and shorten the response time of artillery support.

202.   The aim of this chapter is to describe the standardised radiotelephone procedures to be used between artillery observers and artillery fire direction centres when calling for fire.

203.   NATO forces will follow the principles described in this chapter when one nation calls for fire from the artillery of another nation using standard calls, terms, procedures and commands.

SECTION II

GENERAL PROCEDURES

204.   **Language.** For multi-national operations the working language is normally English. Whenever the national language of the observer is different from that used in the Fire Direction Centre (FDC), it is advised that a fire support liaison officer be attached to the FDC to assist in interpretation.

205.   **Phonetic Alphabet.** When necessary to help identify any letter of the alphabet, the standard phonetic alphabet is used (See ACP-125).

206.   **Pronunciation of Numerals.** The rules for pronunciation of numerals in ACP-125 will be observed, including the rule for the conduct of artillery fire, where the pronunciation of whole hundreds is to be "hundred" instead of "one zero zero". For example:

Numeral	Spoken as
100	ONE -HUNDRED
500	FIVE-HUNDRED

207.   **Use of default Values.** In calls for fire between observers and FDCs of different nations, knowledge of national defaults is not to be assumed. This means for fire missions at battalion level and above, that the observer will always describe the target and the FDC will, if possible, report the projectile and fuze function, which will be used at the FFE.

208.   **Deviations from ACP-122 and 125.** The radiotelephone procedure used for the adjustment of field artillery fire deviates somewhat from communication procedures published in ACP-122 and 125 in that abbreviated procedure is used in those instances where no confusion will exist. The deviations normally consist of one or more of the following:

  a.   Elimination of call signs (call words) after identities have been established. Under certain circumstances, when identification is required, transmissions are identified by the use of call sign suffix words, letters or numbers only. (FR identifies all transmissions by the use of call sign and number).

  b.   A short phrase read-back method of transmission is- automatically accomplished without the special operating instruction "READ BACK".

  c.   Divergence from the normal or abbreviated normal message format. Examples of radiotelephone procedures used for the adjustment of field artillery are given in Annex A.

209.   **Short Phrase Read Back Procedures:**

  a.   To facilitate the transmission of firing data and to minimise requests for repetition which otherwise might be necessary the call for fire, message to observer, subsequent corrections and fire commands will, where applicable, be transmitted in short phrases consisting of one or more elements of firing data.

  b.   Each phrase is read back by the receiving operator, without operating instructions to do so, exactly as it was received.

  c.   The length of each phrase, or the number of elements of firing data included in each transmission should be commensurate with the state of training and experience of the individuals concerned and established procedure.

210.   **Examples.** Examples of general procedures are given at Annex A**.** Examples 1-6.

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SECTION III

SPECIAL APPLICATIONS

211**.   General.** There are four instances of special application of the use of radiotelephone in the adjusting of artillery fire of sufficient note to warrant illustrating their use. These are:

      a.   The use of a relay station between the artillery forward observer (FO) and FDC.

      b.   The use of "SPLASH".

      c.   Radiotelephone procedures used in conducting a simultaneous mission.

      d.   The transmission of fire commands between the FDC and the firing battery(s).

212.   **Relay Procedures**. In circumstances where direct radio contact between the FO and FDC cannot be established because of distance, terrain etc., the relay procedure given in Annex A, Examples 7-9 is to be used.

213.   **Splash.** In circumstances where the warning "SPLASH" must be transmitted to the FO, the radiotelephone procedure at Annex A, Example I0, will apply.

214.   **Simultaneous Missions.** On radio nets where different languages are being used, every effort should be made to avoid using simultaneous procedures (e.g., use alternative nets), however, there are times when it becomes necessary to fire two or more missions simultaneously on the same fire direction net. When this situation arises, it is necessary that stations identify their transmissions in order to avoid confusion. All stations, when sending or transmitting, use their one suffix number. In this situation the procedure at Annex A, Example 11, will apply.

215. **Fire Commands.** National procedures will be used for fire commands between the FDC and the firing batteries. (This assumes that liaison is established at FDC level).

SECTION IV

CHALLENGE AND AUTHENTICATION

216.   Challenge and authentication should be considered a normal element of initial requests for fire. The FDC inserts the challenge in the last repeat sequence of the fire

request transmission. The observer transmits the correct authentication reply to the FDC immediately following the challenge

217.   Subsequent adjustment(s) of fire will be challenged by the fire direction officer or equivalent when in his judgement such a challenge is appropriate and feasible. He must consider security, friendly troop safety, communications, deception and fire support responsiveness to the manoeuvre force.

218.   Under no circumstances should challenge and authentication reduce fire support responsiveness. When an artillery battery is in a unique high response posture, challenge and authentication may be deferred beyond execution of the initial fire request, but should be accomplished as soon as operationally feasible.

EXAMPLE PROCEDURES

The Forward observer (F0) should make a preliminary call to the Fire Direction Centre/Command Post (FDC/CP) in order to establish communications and to warn of an imminent call for fire.

Example 1: Preliminary Call (including Warning Order)		
ForwardObserver (C/S S9C37)	FDC/CP (C/S S8C27)	Remarks
"Hello S8C2, This is S9C37 (Fire Mission) Call for Fire 6 Guns Over"	"S8C27, Fire Mission 6 Guns. "Out".	Note: During mortar procedures an alternate frequency may be assigned to link the observer with the fire unit.

Notes:

1.   US call signs and US artillery battalion organisations are used throughout these examples. Each nation will use its own call signs and organisation.

2.   Other elements (target type, adjustment mission) may be included with the warning order.

Example 2: Communications now established, the FO continues with The Call for Fire.		
Forward observer (C/S S9C37)	**FDC/CP (C/S S8C27)**	**Remarks**
"From KU1234, Direction 5690, Right 600, Add 800, Up 20. Tank Platoon. Adjust Fire. Over"	"From KU1234, Direction 5690, Right 600, Add 800, Up 20. Tank Platoon. Adjust Fire. Out" "Authenticate 44 Over"	Note: Authentication needs to be regulated by written orders (fire support communications).
"I authenticate 76 Over".	"Correct/wrong Out"	

Notes:

1.   Voice call signs are dropped after communication has been established.

2.   When there is an alternative means of communication or a separate fire direction channel available to the FO, FDC and firing units, the transmission of call signs **is** not necessary. The target number should be included if more than one fire mission is being engaged at the-same time.

3*.*   The transmission of the target number is advisable when radio is being used and a separate fire direction channel is not available, when communications are difficult or when multiple missions are being fired.

Example 3: Message to Observer		
FDC/CP (C/S S8C37)	**Forward observer C/S S9C27**	**Remarks**
"Battalion Bravo. Two Rds FFE ICM. KT1764 Over".	"Battalion Bravo. Two Rds FFE ICM. KT1764. Out".	1. The adjusting fire unit (eg, Bravo) may be indicated" 2. The ammunition type must be sent. Standard defaults for the projectile type is not advisable.

Example 4: Subsequent Corrections		
FDC/CP **(C/S S8C27)**	**Forward observer** **(C/S S9C37)**	**Remarks**
"Shot. Over".		
	Shot. Out".	
	"Left 100, Drop 400. Over".	
"Left 100, Drop 400. Out".		
"Shot. Over".		
	"Shot. Out".	
	"Add 200. Over".	
"Say Again. over".		
	"Add 200. Over".	
"Add 200. Out".		
Shot. Over".	"Shot. Out".	
	"Add 100. Over".	
"Add 100. Out".		
"Shot. Over".		
	"Shot. Out".	
	"Drop 50. Fire for Effect. Over".	
"Drop 50. Fire for Effect. Out".		

Example 5: Fire for Effect.		
FDC/CP **IC/S S8C27)**	**Forward Observer** **(C/S S9C37)**	**Remarks**
"Fire for Effect. over"		The FDC/CP informs the FP when the guns start the method of FFE.
	"Fire for Effect. Out".	
"Rounds Complete. over".		
	"Rounds Complete. out".	The FDC/CP informs the FO when the guns finish the method of FFE.

Example 6: End of Mission and Results		
FDC/CP **IC/S S8C27)**	**Forward Observer** **(C/S S9C37)**	**Remarks**
"End of Mission. Tank platoon dispersed. out"	"End of Mission. Tank platoon dispersed. over".	More general terms may be used to describe the results of the fire mission eg: "Suppressed" "Disabled" "Smoke Effective" "Destroyed"

Relay Procedures

S9C89
(OP)

S8D40

(LO)

S8C27
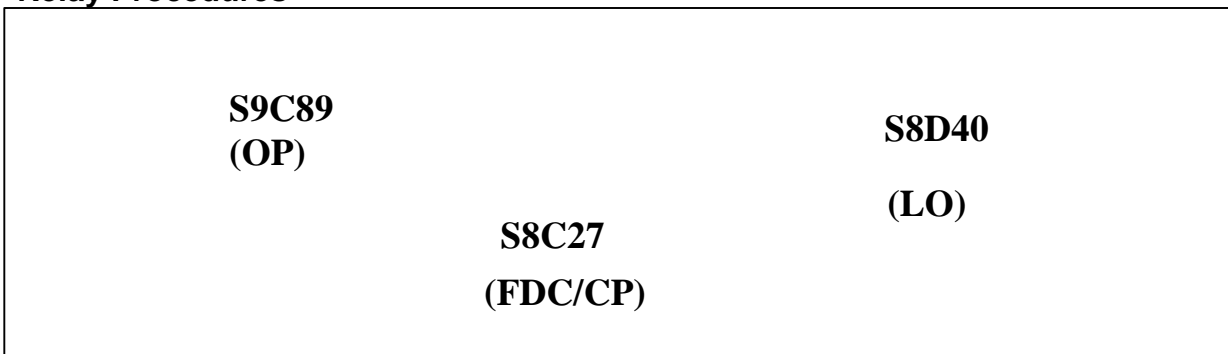
(FDC/CP)

Participants:

a.   In cases where the FO and FDC/CP are not in direct radio contact a third station that can communicate with both may relay the call for fire. In this example the Fire Support Officer (FSO) with a manoeuvre battalion is able to contact both the FO and the FDC/CP.

b.   When the FSO hears the FO transmit a preliminary call for fire but does not hear the FDC/CP respond, he automatically transmits the following:

Example 7: Relay Procedures		
Liaison Officer **(C/S S8D40)**	**FDC/CP** **(C/S S8C27)**	**Remarks**
"S8C27, This is S8D40, From S9C89, Adjust Fire, Shift From Registration Point One. Over".	"S8C27, Adjust Fire, Shift From Registration Point One. Out".	

Note: With communications established, the FO continues his Call for Fire. To permit the originator to correct any mistakes by the relay station (FSO in this example), a pause of five seconds is made between the relay station transmission and the check back.

Fire Support Officer (C/S S9D40)	FDC/CP (C/S S8C27)	FO (C/S S9C89)
"D40, Direction 1940, Right 600, Over". "D40, Out".	(Five second pause) "Direction 1940, Right 600, Out".	"Direction 1940, Right 600, Over".

The mission will continue to be sent in this manner until all elements of the call for fire have been received and repeated back by the FDC/CP. The relay station reads back that portion of the call for fire request transmitted by the FO and transmits the information to the FDC/CP. The call signs suffix number of the originating and receiving stations are not confused.

Fire Support Officer (C/S S8D40)	FDC/CP (C/S S8C27)	FO (C/5 S9C89)
"D40, Battalion, Two Rds FFE, HE, KT1764, Over". "D40. out".	"Battalion, Two Rds FFE, HE, KT1764, over".	(Five seconds pause) "Battalion, Two Rds FFE, HE, KT1764, Over".

The mission will continue to be sent, relayed and acknowledged in this manner until it is complete.

Notes:

1.   The relay example above was accomplished without the aid of operating instructions, eg, unit address designations. If necessary, the originating station will use whatever transmission instructions are required to accomplish the mission.

2.   The ammunition type must be specified. Default options are not to be used in international procedures.

Example 8: Correcting a Mistake During the Relay Procedure		
Fire Support Officer (C/S S8D40)	**FDC/CP (C/S S8C27)**	**FO (C/S S9C89)**
"D40, Battalion, 1 rd FFE (volley), HE, KT1764, over". "D40 wrong over "D40 wrong, Battalion, 2 rds FFE (volleys), HE, KT1764, over". "D40, out".	"Battalion, 2 rds FFE (volleys), HE, KT1874, over". "Wrong over". "Wrong, Battalion, 2 rds FFE (volleys), HE, KT1764, over".	 (Five second pause) "Wrong, Battalion, 2 rds FFE (volleys), HE, KT1764, over".

Note: Some Nations may use the word "Correction" instead of "Wrong".

Correcting a Mistake by the Transmitting Operator

If a transmitting operator makes an error, he transmits the pro-word 'Correction" followed by the last word group or phrase that was incorrectly transmitted. The transmission then continues.

Example 9: Correcting a Mistake by the Transmitting Operator		
Fire Support Officer (C/S S8D40)	**FDC/CP (C/S S8C27)**	**FO (C/5 S9C89)**
   "D40, Right 100, Drop 200, over". "D40, Out"	 (Five second pause) "Right 100, Drop 200, out".	"Right 100, Add 200, **Correction,** Right 100, Drop 200, Over". (Note: "Correction" should not be repeated.)

Splash Procedure.

The following procedure is used when the FO has requested "Splash" or when it is reported by convention (see Chapter 6). After the guns have fired the following transmission is made.

Example 10: Splash Procedure.		
FDC/CP **(C/S S8C27)**	**FO** **(C/S S9C89)**	**Remarks**
"Shot, Over". "Splash, Over". "Left 100, Drop 400, Out". "Shot, Over". "Splash, Over".	"Shot, Out". "Splash, Out". "Left 100, Drop 400, over". "Shot, out". "Splash, Out".	Note. "Splash" is transmitted no later than five seconds before time of impact.

Example 11 Simultaneous Mission

S9D78
(FO 2)

S8C99
(FO 1)

S9B13
(Bn FDC/CP
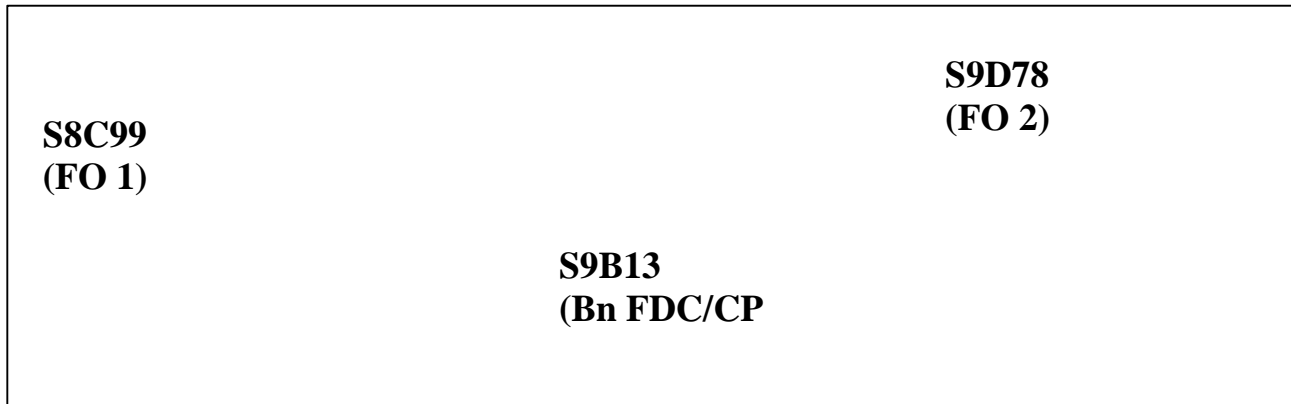
In the following example of a simultaneous mission, the Battalion FDC/CP (B13) receives a Call for Fire while busy with another one. This procedure of the first Call for Fire should only be interrupted during a natural pause. Example of natural pauses are:

    a.   After the initial call for fire and before the first round is fired.

    b.   After a report of "Shot" and during the time of flight.

Example 11: The Simultaneous Mission		
F01 (C/S S8C99)	**Bn FDC/CP (C/S S9Bl3)**	**F02 (C/S S9D78)**
"S9Bl3 This is S8C99, Two Machine Guns Firing, Adjust Fire, Over".	"S8C99 This is S9Bl3. Two Machine Guns Firing, Adjust Fire. Out".	
"Grid 432 182, Direction 1800, ICM in Effect, over". "1 Battery, 1 rd FFE, ICM, Converge, KT3942, Out".	"Grid 432 182, Direction 1800, ICM in Effect, Out". "1 Battery, 1 rd FFE, ICM, Converge, KT3942, over".	
"Shot, Out".	"Shot, over".	
	"S9Bl3A, Adjust Fire, Out".	"S9Bl3, This is S9D78, Adjust Fire, over".
	"S9Bl3A, Grid 422 189, Direction 1980, Survey Party in Open, Out".	"S9D78, Grid 422 189, Direction 1980, Survey Party in open, over".
"S8C99 Right 100, Drop 200 over"	"S9Bl3 Right 100, Drop 200, Out"	
	"S9D78, This is S9Bl3A, 1 Battery, 1 Volley, ICM, KV 3923. over".	"S9D78, 1 Battery, 1 Volley, ICM, KV 3923, Out".

Example 11: The Simultaneous Mission		
F01 (C/S S8C99)	**Bn FDC/CP (C/S S9Bl3)**	**F02 (C/S S9D78)**
	"S9Bl3A Shot, Over".	
		S9D78 Shot, Out".
"S8C99 Shot, Out".	"S9Bl3 shot, over".	
"S8C99 Add 100, Over".	"S9Bl3 Add 100, Out".	
"S8C99 Shot, Over".	"S9Bl3 Shot, over" "	
	"S9Bl3A Left 50, Add 100,Over".	"S9D78 Left 50, Add 100, over".
	"S9Bl3A Shot, Over".	"S9D78 Shot, Out".

Both missions continue in this manner until one FO gives "End of Mission". Thereafter, call signs are omitted.

Notes.

1.   Call signs may be replaced by target numbers.

2.   Ammunition defaults are not to be used in international procedures.

CHAPTER 3

CALL FOR FIRE PROCEDURES

SECTION I

GENERAL

301.   The aim of this chapter is to describe the calls, terms, procedures and commands that have been agreed by NATO forces for use when one nation provides fire in response to a call for fire from another nation. This chapter deals with non-ADP systems. The interoperability between ADP and non-ADP systems is covered in Chapter 14. All multi-national Fire Mission requests are to use the procedures laid down in this chapter.

302.   The differences in national procedures, language and the limited scope of this agreement makes the presence of Fire Support Liaison Officers essential (See Chapter 14).

303   When calling for Naval Gunfire Support, the procedure in ATP-4 should be used.

304.   Terms and definitions used in this chapter, may be found in the NATO Artillery Glossary (AAP-38)

305.   Throughout this chapter the word "gun" is used in its generic sense to include all indirect fire systems and the word "observer" is used to indicate the originator of a call for fire.

306.   Calls for fire are requests unless prior authority has been granted to order fire:

    a.   **Requests for Fire.** The FDC/CP will determine the units to fire, the type and quantity of ammunition to be expended, and any other appropriate data and tell the observer.

    b.   **Orders for Fire.** The observer may order fire from the fire unit(s) he has been authorised to control.

SECTION II

ELEMENTS OF A CALL FOR FIRE

307.   The elements of a call for fire are:

a.   Observer identification.

b.   Warning order.

c.   Location of target (including direction when necessary).

d.   Target description.

e.   Method of engagement.

f.   Method of fire and control.

308.   The sequence of the elements of a call for fire is not mandatory. It is not necessary to await completion of all the elements before beginning the transmission of a call for fire.

309.   **Observer Identification.** This is the establishment of communication between the observer and the FDC/CP.

310.   **Warning Order.**

a.   The warning order is -"Fire Mission". One of the following may be added to indicate the number of guns or fire units:

(1)   Number of guns e.g. "4 guns".

(2)   Number of batteries e.g. "Battery" or "5 Batteries".

(3)   Number of Battalions or Regiments e.g. "Regiment" or "3 Battalions".

(4)   Division.

(5)   All available.

Examples:

1.   Fire Mission Battalion/Regiment.

2.   Fire Mission All Available.

b.   The type of mission may be substituted for, or added to, the Warning Order. This could include:

      (1)   Adjust fire.

      (2)   Fire for effect.

311.   **Location of Target.** The location of the target may be given, in order of priority in one of the following ways:

a.   **By Grid Co-ordinates (the normal method of circulation by national FDC to other nations):**

      (1)   The grid will be given in terms of Eastings followed by Northings, preceded by the word "Grid", to the degree of accuracy required by the type of engagement (i.e. 6, 8 or 10 figures).

      (2)   Altitude (in metres unless otherwise specified) is normally given by the observer. If it is not given it is determined in the FDC/CP.

      Examples:

         "Grid 149 523, Altitude 155".

         "Grid 1980 4215, Altitude 175 Feet".

b.   **By a Target Number.** The recorded target and associated location must be known to both the observer and the FDC/CP.

      Examples:

         "ZT 1242".

c.   **By Reference/Shift from a Target Number.** The designation and location of the target/Target Number, must be known to both the observer and the FDC/CP. The reference/shift from the known point will include the direction, horizontal correction (shift) and the vertical correction (shift), if any, to the target.

      Examples:

         "From ZT 1234, Direction 1200,
         Right 400, Drop 200, Up 50".

"Shift AB 7230. Direction 400,
Right 400, Drop 200, Up 50".

d. **By Polar Co-ordinates/Polar Plot** (only to be used only when the position of the observer is known by the FDC/CP). Polar co-ordinates consist of the direction, distance and vertical correction/shift, if any, from the observers position to the target. A vertical correction/shift is accepted as being defined in meters unless specified otherwise.

Examples:

"Direction 1240, Distance 2000, Up 50".

"Direction 1242, Distance 1795, Up 23 mils".

312. **Direction**. When the observer anticipates that he will be required to adjust or correct the fire, he will send a direction. The direction is normally the grid bearing (measured in mils) from the observer to the target. If the direction is given in degrees, the word "degrees" must be stated. If the ground observer wishes to use the gun-target line (GT line) he will order "Direction GT". If a direction is not ordered by an air observer, the GT line is used. If the observer wishes to use an arbitrary reference line other than the line observer-target or gun-target, he will order it in the normal way, e.g., "Direction 1440".

313. **Target Description**The observer includes any or all of the following target features:

a. **Target Type**. Provides information as to the type of target, e.g. "Infantry company".

b **Degree of Protection.** Provides information relative to the target protection, e.g., "Dug in along ridge".

c. **Target Activity.** Provides information relative to the activity of the target, e.g., "Preparing to Move".

314. **Method of Engagement.** The method of engagement covers the special procedures or information that are required for the mission. These may include:

a. **Type of Engagement.** The types of special engagement which may be ordered are:

(1) "Mark" the order indicating that the observer is going to fire rounds on a specified location to orient himself or to indicate targets.

(2) "Danger Close" ordered when the target **is close to friendly forces or non-combatants**. The initial point of impact is determined by the

3 - 4

observer based upon the ammunition type, range to the target and the fall of shot. Danger Close procedures are designed to ensure the safety of friendly forces or non-combatants.

Notes:

1.   A tactical decision is made, by the manoeuvre commander as to how close fire may be brought to the friendly forces.

2.   GE does not use this procedure.

(3)   "Registration" ordered whenever survey or meteorological data is not available, is suspect or is known to be inaccurate. Normally the FDC directs the observer to conduct a registration mission on a designated point. However, the observer may be directed to select the registration point.

b.   **Trajectory.** This is the order to use high or low angle fire. The order will be "High Angle" if no order is given the convention is to fire at low angle.

c.   **Ammunition.** This element indicates the type of ammunition and may include the volume required:

(1)   **Type.** The observer should specify the "type of ammunition" required. This ensures that the response is in accordance with the observers call for fire, which may differ from national default options. Ammunition is specified as follows:

(a)   The ammunition required in adjustment and at fire for effect is specified by the shell or fuze as shown below:

(1)   Shell e.g. "HE", "Illuminating", "WP", "Smoke" ,or "Bomblet/DPICM".

(2)   Fuze, e.g., "Quick", "Proximity/VT", "Time", "Delay" or "Concrete Piercing".

(b)   If the type of ammunition required in adjustment and in fire for effect differs, this is stated by specifying the type of ammunition together with the terms "In Adjustment" or "In Effect" as applicable. If the shell is normally fitted with a particular type of fuze, the fuze action is not stated.

Examples:

1. "Delay" HE Delay is fired during adjustment and fire for effect.

2. "Proximity/VT in Effect" - HE shell fuzed Quick is used in adjustment and HE fuzed Proximity/VT at fire for effect.

3. "WP in Adjustment, Proximity in Effect". WP is used in adjustment and HE fuzed Proximity at fire for effect.

(2) **Number of Rounds or Effect Required.** Either the number of rounds or effect required is requested or ordered as follows:

a. The number of rounds to be fired from each gun at fire for effect.

or

b. The effect required is expressed as Suppress, Neutralise or Destroy. The FDC/CP will determine the number of rounds in fire for effect and state it in the message to observer.

315. **Method-of Fire and Control.**

a. This includes certain orders which indicate the control to be exercised by the observer over:

(1) Whether adjustment is to be made, or fire delivered without adjustment (this may be indicated in the Warning Order).

(2) Method of fire.

(3) Time of delivery of fire.

b. The orders to be used are:

(1) "Adjust Fire". Fire is to be adjusted by the observer. "Adjust Fire" may be preceded by specific instructions from the observer as to how the adjustment is to be conducted.

(2) "Battery Left (or Right)". Individual guns are to be fired in sequence with a standard interval of five seconds. The interval may be changed by the observer specifying the interval required, e.g., "Battery Right 10 Seconds".

(3)   "Fire for Effect". The type and quantity of ammunition authorised is fired from each gun as quickly as possible with accuracy and within the rate of fire for the equipment.

        Note: During fire for effect the observer may make corrections to the MPI if necessary. The observer or FDC/CP may also make changes to the number of guns, the interval or the ammunition.

(4)   "...... Rounds, Fire for Effect". Number of rounds ordered to be fired from each gun. (See note at b (3) above).

(5)   "Continuous Illumination". Rounds are fired at such an interval as to maintain uninterrupted illumination of the target area, e.g.,, "Continuous illumination, 30 seconds". The observer may state the duration that the illumination is to be effective, e.g., "Illumination Fire from .... to.......... ", in which case the receiving FDC will order the interval.

(6)   "Co-ordinated Illumination". Illuminating rounds are fired, using an interval, so that the target area is illuminated at the time of impact of, other projectiles. The firing of the "illuminating" rounds may be controlled by the observer or the FDC/CP.

(7)   "At My Command" (followed by) "Fire". Used when the observer wishes to control the moment of firing for any reason. The order "Fire" is given after the fire unit has reported "Ready" and/or when the observer wishes to fire.

(8)   "TOT" (Time on Target). The method of firing on a target in which various artillery units, mortars and naval gunfire support ships so time their fire as to ensure the initial rounds strike the target simultaneously at the time required.

(9)   "Interval". An interval may be ordered as a "Rate", which indicates the number of rounds per minute per gun to be fired (e.g., "Rate 2" = 2 rounds per gun per minute). It may also be ordered as the number of seconds between successive rounds from each gun. (e.g. "5 Rounds Fire For Effect 20 Seconds").

        Note: US and GE do not use this term.

(10)   "Cease Loading". The command used during firing two or more rounds to mean that the guns are not to be reloaded. Fire shall be brought to an end with bores (barrels) clear.

(11)   "Check Firing". A command to cause a temporary halt in firing, all other drills continue.

(12)   "Stop". This order causes a halt to all activities. It is primarily used as a safety measure. BE, DA, HU and PL use this term.

(13)   "Continuous Fire". In field artillery and naval gunfire support, loading and firing at a specified rate or as rapidly as possibly consistent with accuracy within the prescribed rate of fire for the equipment. Firing will continue until terminated by the command "End of Mission" or temporarily suspended by the command "Cease Loading" or "Check Firing".

(14)   "Duration". This is a term used to specify the time period for the delivery of smoke and illumination. It is normally defined as a period of time but can be defined as a start and an end time. See para 617 (b) and (c).

(15)   "Followed by.... ". Part of a term used to indicate a change in the rate of fire, in the type of ammunition or in another order for fire for effect.

    Note: SP, GE and US do not use this term.

(16)   "Repeat:

    (a)   During Adjustment. Fire another round(s) at the last data, coupled with any change in number of guns and/or ammunition, if necessary.

    (b)   During Fire for Effect. Fire the same number of rounds using the same method of fire for effect as last ordered. Changes may be made to the number of guns, the interval and the ammunition. Target grid corrections may also be coupled with this order.

(17)   "Record as Target". This order is used to denote that the target is to be recorded for future engagement. The order is given before "End of Mission".

(18)   "End of Mission". An order given to terminate firing on a specific target. The effects on the target may be included.

316. **Cancellation of orders.** All observers' orders can be cancelled by:

a. "Cancel" coupled with the original order or report, e.g., "Cancel Check Firing" and "Cancel TOT 1615hrs".

b. A fresh sequence of opening orders.

c. Fresh orders of the same nature. This does not apply to target grid corrections. Orders containing quantity or type of ammunition are usually cancelled by a new order for quantity or type of ammunition and the new order takes effect immediately.

SECTION III

SPECIAL PROCEDURES

317. The elements of the calls for fire for the following missions will be as detailed in the preceding paragraphs of this chapter:

a. **Danger Close Missions:**

(1) The grid reference ordered will be the location of the target. Prior to adjustment the observer may order a correction to ensure that the first rounds do not endanger friendly forces. The size of this correction may be varied to take account of calibre, ammunition, range from the guns to the target and possible variations in muzzle velocities.

(2) Deliberate corrections towards the target are used and fire is brought to a distance from friendly forces which is acceptable to the manoeuvre unit commander.

b. **Smoke Missions.** Smoke Missions may be fired either at a single aim point or with individual guns aimed at points evenly spread along a line. This is indicated by the location of the up wind point, the grid bearing (attitude), and length of the line. Normally HE will be used in adjustment and BE smoke or WP used in fire for effect. However, smoke or WP may also be used in adjustment.

(1) The ammunition order will include "Smoke", "WP" or "Smoke/WP in Effect".

(2) The observer may state how long the smoke is to be effective e.g., "From 2145 to 2200hrs" or "Duration 10 minutes".

c. **Illumination Missions:**

(1) Ammunition. The ammunition order is "Illuminating,".

(2) The observer may state how long the light is to be effective e.g., "From 2145 to 2200 hrs" or "Duration 15 minutes".

(3) Method of Fire. At fire for effect the method of fire and control may be either:

(a) " .....Rounds FFE" (normally coupled with an interval) e.g. "15 rounds fire for effect, 60 seconds".

(b) "Continuous Illumination".

(c) "Co-ordinated Illumination".

d. **Precision Guided Munitions.** To be written.

SECTION IV

REPORTS TO OBSERVER

318.   Message to Observer. When the observer's call for fire is received, the FDC/CP to which it has been directed will prepare and transmit a message to observer as soon as possible. The message to observer may include the elements shown in the table below. When any element has been specified by the observer in his call for fire, it may be omitted from the message to observer, provided the FDC/CP can meet the observer's requirements, otherwise it must be included. If the request for fire cannot be met the FDC/CP will report "Not Available".

Serial	Element	Remarks
(a)	(b)	(c)
1	Units to fire	Indication of the adjusting unit may be included
2	Projectile and/or Fuze	If a type of ammunition is not specified the standard combination of shell and fuze will be fired unless the target description indicates otherwise, in which case a report must be made to the observer. A report must also be made if the FDC/CP changes the type of ammunition requested or cannot comply with the order.
3	Number of rounds from each gun for fire for effect	A report must also b made if the FDC/CP changes the type of ammunition requested or can not comply with the order.
4	Target number	

319.   **"Ready"**. The term to indicate that a weapon or weapons are aimed, loaded and/or prepared to fire.

320.   **"Shot**........... "   or "Shot" is reported to the observer as follows:

    a.   "Shot"....... coupled with a gun number or target number may be sent:

        (1)   For the first round of adjustment e.g. "Shot 4" or "Shot AB1234".

        (2)   On changing the adjusting gun, e.g., "Shot 3".

        (3)   When requested.

    b.   "Shot" is sent:

        (1)   For each subsequent round of adjustment.

        (2)   For the first round of each method of fire for effect.

    c.   These terms may be coupled with a time of flight.

321.   "**Splash**" "splash" is reported by convention, five seconds prior to predicted time of impact when:

    a.   Firing high angle.

    b.   An air observer is controlling the mission.

    c.   Requested by a ground observer.

Notes:

-If an observer requires an alteration to the interval of five seconds, he couples the alteration with "Report Splash", e.g., "Report Splash 10".

-US and SP always report "Splash".

322.   **Time of Flight.**

    a.   The time of flight may be reported to the observer for the first round of each mission with "Shot" or "Ready", when the charge or trajectory is changed during a mission, or when requested, e.g., "Shot 4, 25" or "Ready 25".

      b.   The time of flight is sent to the observer during a moving target mission, an air observer mission, a high angle mission and for high explosive shell in a co-ordinated illumination mission.

323.   **Neglect** is reported when for any reason a shell is fired at incorrect data or with incorrect ammunition. Another shell or shells is fired at the correct data without any order from the observer unless At My Command is in force, or during a danger close mission.

324.   "**Rounds Complete**". "Rounds Complete" is always reported when fire for effect is completed except when firing one round from one gun.

325.   **"Target Recorded**". This may be reported by the FDC/CP when it has recorded the data of the fire mission.

ADJUSTMENT OF ARTILLERY FIRE

GENERAL

1.   This Annex describes the agreed simplified procedures to be used for the adjustment of ground force artillery fire by ground or air observer. The two adjustment procedures are:

   a.   The target grid procedure.

   b.   The Laser Range Finder (LRF) procedure.

TARGET GRID PROCEDURE

2.   Observer. The observer observes and corrects fire relative to a spotting line (called the Direction), which may be:

   a.   The observer-target line (OT line) (normally used by a ground observer).

   b.   The gun-target line (GT line).

   c.   An arbitrary spotting line (e.g. any convenient line e.g. the line of a road or railway).

3.   Corrections. The following corrections are used in relation to the target and the direction/spotting line:

POSITION OF ROUND	CORRECTIONS
Right of line	Left
Left of line	Right
Beyond target (over)	Drop
Short of target (short)	Add
Below desired height of burst	Up
Above desired height of burst	Down

Notes

(a)   The up/down corrections apply to either time air burst or to a change in target altitude.

(b)   Corrections are given in meters.

4.   Adjustment. The adjustment procedure consists of two stages:

Stage I - Correcting fire on to the spotting line.
Stage II - Bracketing along the spotting line until a suitable adjustment is obtained.

5.   An example of adjustment is as follows:

```
                              2


                              4
                          TARGET
                                              1

                              3




                       SPOTTING LINE
```
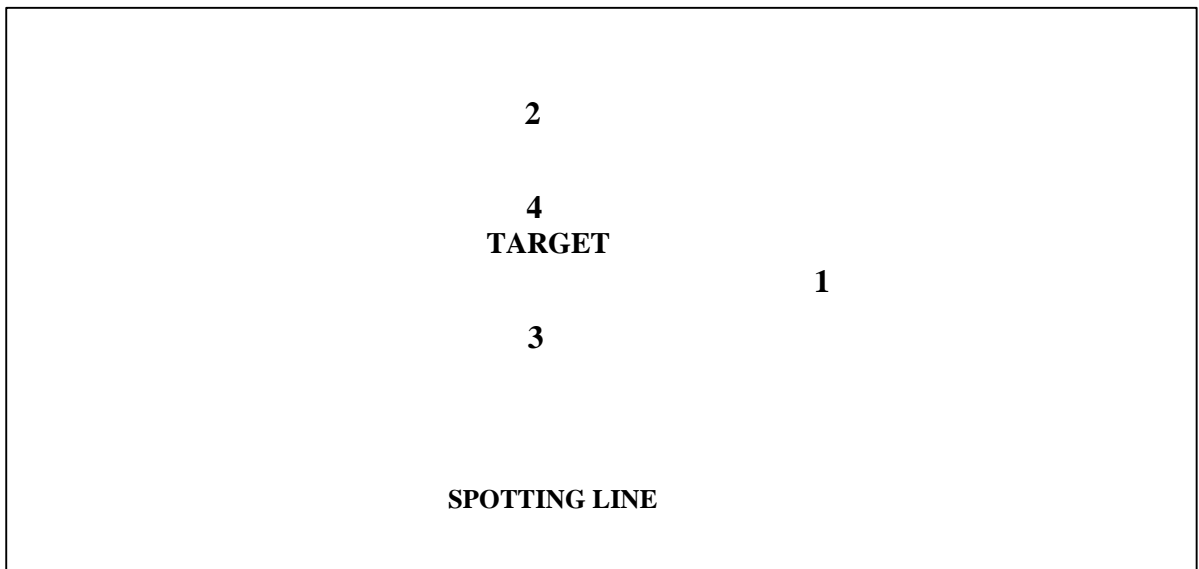
(Not to scale)

(1) POSITION OF ROUND	CORRECTIONS
1. Round one or first series of rounds fell to the right.	Left 200
2. Round two or second series of rounds fell on the line and over.	Drop 200
3. Round three or third series of rounds fell short.	Add 100
4. Round four or fourth series of round fell over.	Drop 50, 5 Rounds Fire for Effect

Note: The third and fourth round or series of rounds constitute the 100 meter bracket on the spotting line.

6.   When the observer is experienced he will combine the actions of serials 1 and 2 above. **LASER RANGE FINDER (LRF) PROCEDURE**

7.   **Corrections.** If the observer indicates a target using polar coordinates, fire can be adjusted by one of the following procedures.

      a.   **Target Grid Adjustment**. See Appendix 1 to Annex A of Chapter 6.

      b.   **Laser Range Finder (LRF) Adjustment**. LRF adjustment may be conducted in the following ways:

            (i)   Lazing the point of burst/impact of a single round and then sending the Direction, Distance and Vertical Angle to the FDC.

            (ii)   Using multiple rounds the observer lazes the point of burst/impact of each round and sends the mean Direction, Distance and Vertical Angle to the FDC.

            (iii)   Using multiple rounds the observer lazes the mean point of impact and sends the Direction, Distance and Vertical Angle to the FDC.

      c.   This initial correction is usually accompanied by an order for FFE.

Note: GE does not use the LRF Adjustment procedure.

CHAPTER 4

TARGET NUMBERING SYSTEM

SECTION 1

GENERAL

401.   This Chapter describes the basic system of target numbering agreed by NATO forces for use in fire support operations.

402.   The objective of the target numbering system is to identify, with alphanumeric characters, points or areas which are to be fired upon or referenced. Such a system must uniquely identify each point or area and must be compatible with automatic data processing equipment.

403.   The way in which target letters and numbers is allocated within armies to formations, units and detachments is a matter of national policy AND is not covered by this agreement. In operations where formation of one Nation using one system is subordinate to a formation from another Nation using a different system, it will be normal for the allotment system laid down in the Standard Operating Procedures of the senior headquarters to be adopted by the junior formation.

SECTION II

TARGET NUMBERING SYSTEM

404.   The target number is comprised of six characters, comprising two letters followed by four number positions. (e.g. AB1234).

405.   The two letter group may be used to indicate the originator of the target number and/or the level holding the target data.

406.   To avoid duplication, the first letter will designate a particular Nation, or Corps. Nations using more than one National identifying letter as the first letter of the two letter group will publish which corps is identified by each letter in their operation order for a particular operation. In a situation where a Nation has more corps than it has allotted first letters, it should re-use its own letters as long as the Nation's adjacent corps do not share the same letter.

407. National and multi-national formation identifying letters are:

Belgium/Luxembourg	-	B
Canada	-	C
Czech Republic	-	J
Denmark	-	D
France	-	F
Germany	-	G
Greece	-	E
Hungary	-	Q
Italy	-	I
Netherlands	-	H
Norway	-	N
Poland	-	V
Portugal	-	P
Spain	-	S
Turkey	-	O, T
United Kingdom	-	U
United States	-	A, K
AMF (L)	-	M
ARRC	-	L
EUROCORPS	-	X
GE/NL Corps	-	R
GE/US Corps	-	W
MNC NE Corps	-	Z
US/GE Corps	-	Y

CHAPTER 5

The Fire plan

SECTION I

GENERAL

501.   A fire plan table, together with fragmentary orders and standing operating procedures provides the necessary information to give fire support. The fire plan is prepared by the appropriate artillery headquarters, and sent to all participating units. It may consist of any or all of the following items:

a.   A target list (See Annex A).

b.   One or more fire plan tables (a combined target list and schedule of targets).

c.   A target overlay (example at Annex B).
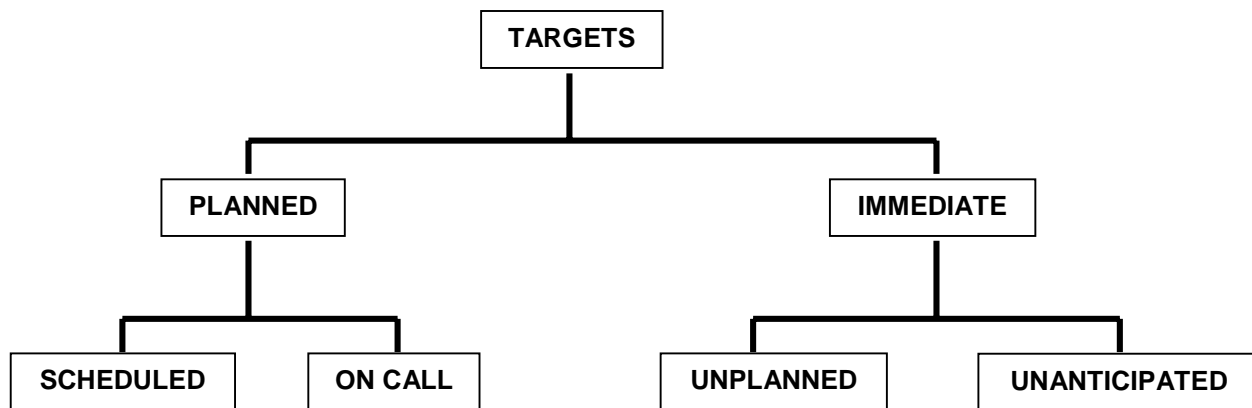
SECTION II

TARGETS

502.   Targets include the wide array of mobile and stationary forces, equipment, and other military resources that an adversary commander can use to conduct operations at any level — strategic, operational, or tactical. From a commander's planning and execution perspective, targets fall into two general categories: planned and immediate.

503.   Planned targets are those known to exist in an operational area with actions scheduled against them to generate the effects desired to achieve JFC objectives. Examples range from targets on joint target lists in the applicable campaign plan, to targets detected in sufficient time to list in fire support plans. Planned targets have two subcategories: scheduled or on-call.

504.   Scheduled targets are planned targets upon which fires are to be delivered at a specific time. On-call targets are those that do not have fires scheduled to be delivered at a specific time, are known to exist in an operational area, and are located in sufficient time for deliberate planning to meet emerging situations specific to campaign objectives.

505.   Immediate targets are those that have been identified too late, or not selected for action in time to be included in the normal targeting process, and therefore have not been scheduled. Immediate targets have two subcategories: unplanned and unanticipated.

506.   Unplanned immediate targets are those that are known to exist in an operational area but are not detected, located, or selected for action in sufficient time to be included in the normal targeting process. Unanticipated immediate targets are those that are unknown or unexpected to exist in an operational area but, when detected or located, meet criteria specific to campaign objectives.

```
                        ┌──────────┐
                        │ TARGETS  │
                        └────┬─────┘
              ┌──────────────┴──────────────┐
         ┌────┴─────┐                   ┌────┴─────┐
         │ PLANNED  │                   │IMMEDIATE │
         └────┬─────┘                   └────┬─────┘
        ┌─────┴──────┐               ┌───────┴────────┐
   ┌────┴────┐  ┌────┴────┐     ┌─────┴─────┐   ┌──────┴───────┐
   │SCHEDULED│  │ ON CALL │     │ UNPLANNED │   │UNANTICIPATED │
   └─────────┘  └─────────┘     └───────────┘   └──────────────┘
```

SECTION III

FIRE PLANNING

507.   Deliberate fire planning is conducted through a formal top-down process, with bottom-up refinement. At all echelons, deliberate fire planning begins immediately on receipt of the mission. Company and battalion FSOs should not wait for a target list from higher echelons before beginning their own fire planning. For the manoeuvre brigade, the process begins with the receipt of targeting information from the division. High-payoff targets for the division and specific targets of interest and/or schedules of fire come from the division down to the brigade FSE or targeting officer. The brigade S2 and FSO must refine this division guidance for the brigade area and concept of operation. (The Target List flow diagram is at Annex E.)

508.   The brigade is normally the lowest level at which formal fire planning is done. The brigade FSO receives from the division targets that are in his zone and in the brigade area of interest. The brigade FSO works with the targeting team at brigade to develop targets within his zone. The brigade FSO adds division and brigade targets to his target list work sheet, posts the targets on his overlay, and passes those targets to subordinate manoeuvre battalions and the DS artillery battalion.

509.   The battalion FSO, in conjunction with the commander, operations officer, and primary and special staffs, is responsible for identifying the fire support requirements of the battalion. The battalion FSO receives targets from the brigade FSO, modifies them as necessary, and adds targets of concern to the battalion commander. Using the target list work sheet and overlay as tools, he forwards his list of targets to subordinate company FSOs.

510.   The company FSO and manoeuvre company commander plan targets to support the company scheme of manoeuvre. The company FSO receives targets from the battalion that are within the company area of interest. He modifies them as necessary and adds any other targets according to the manoeuvre commander's priorities. Modifications and additions are submitted to the battalion FSO. At the lowest level, the company FSO nominates targets in his sector, records this target information on the target list worksheet, and forwards it to the battalion FSO.

511.   The battalion FSO considers the target information he receives from each of the company FSOs, consolidates it (by eliminating duplications), adds targets needed by the battalion, and forwards a copy of the work sheet to the brigade FSO.

512.   The Brigade FSO receives target list modifications from the battalion FSOs. Using the target list work sheet and overlay, he resolves duplications, adds targets developed by the brigade TA assets, prioritizes the list, and sends it to the DS battalion and appropriate agencies providing support to the manoeuvre brigade commander. He informs the battalion FSOs of any subsequent changes to their plans. It is important that the brigade FSO allow enough planning time for subordinate headquarters and that he establishes a cut-off time for their submission of modifications so that the plan can be disseminated with adequate time for execution. The FSO records targets on a Target List (Annex A).

SECTION IV

TARGET LIST

513.   An example of a target list is at Annex A. An explanation of each heading in the target list is:

      a.   **Line Number**.   A convenient reference.

      b.   **Target Number**.   See Chapter 7.

      c.   **Target location**.   See para 611.a (1).

      d.   **Altitude**.   See para 611.a (2).

      e.   **Target description**.   See para 613.

f.   **Size/Radius**.   (optional). See para 613.c.

g.   **Attitude**.   (optional). See para 613.c(3).

h.   **Remarks**.   (optional). Special considerations for attack of the target and a more detailed description of the target.

SECTION III

FIRE PLAN SCHEDULE

514.   An example of a completed schedule is at Annex C. The fire plan schedule allocates targets to fire units. It specifies:

a.   Timings for the engagement of scheduled targets.

b.   Method of engagement expressed as one of the following:

(1)   Total expenditure of ammunition by each fire unit on each target.

(2)   Or by rates in rounds per gun per minute

(3)   Or method of fire for effect (e.g. 10 rounds fire for effect)

(4)   Or Effect required: neutralise, destroy, suppress.

c.   The type of ammunition to be fired for each target.

d.   On call targets.

e.   Any special instructions.

515.   For each phase of an operation, the following may be prepared:

a.   A fire plan schedule.

b.   Instructions for other types of fire support.

516.   To prepare a fire plan schedule:

a.   For each target to be fired on:

(1)   Indicate the timing either by:

   a.   a point indicating the initial time.

   b.   a horizontal line with vertical line ends indicating the initial and terminating times.

(2)   Indicate the target number above this line/point.

(3)   Show the amount of ammunition or the rate to be fired by the unit below this line/point. (Rate to be expressed as the number of rounds per gun per minute, e.g., R2).

Note. The ammunition type to be fired on each target must be clearly stated on the fire plan schedule. If no indication is given, targets must be engaged with HE (any fuze may be used). If a target is to be engaged with other ammunition it must be specified in the remarks column.

b.   All initial timings refer to time first rounds arrive on the target. No rounds must arrive on the target after a specified terminating time.

c.   Targets may be engaged, singly or as a group, series or program of targets.

517.   An example of a blank fire plan proforma showing both the Target List and Schedule is at Annex D.

SECTION IV

FIRE PLANNING DEFINITIONS

518.   The following fire planning definitions have been agreed:

a.   **target list / liste d'objectifs - répertoire des objectifs**

A tabulation of confirmed or suspected targets maintained by any echelon for information and fire support planning purposes. *Also called "list of targets".* 1/7/80

b.   **target overlay / calque d'objectifs**

A transparent sheet which, when superimposed on a particular chart, map, drawing, tracing or other representation, depicts target locations and

designations. The target overlay may also show boundaries between manoeuvre elements, objectives and friendly forward dispositions. 1/8/73

c. **fire plan / plan d'emploi des feux**

A tactical plan for using the weapons of a unit or formation so that their fire will be coordinated. 1/3/73

d. **artillery fire plan table / plan de feux d'artillerie**

A presentation of planned targets giving data for engagement. Scheduled targets are fired in a definite time sequence. The starting time may be on call, at a prearranged time or at the occurrence of a specific event. 1/2/73

e. **final protective fire / tir d'arrêt**

An immediately available prearranged barrier of fire designed to impede enemy movement across defensive lines or areas. 1/12/79

f. **priority target / Objectif prioritaire**

A target designated by the manoeuvre commander, which has precedence over all other fire for the designated fire unit(s).

g. **predicted fire / tir d'efficacité d'emblée**

Fire that is delivered without adjustment. 1/1/83

h. **preparation fire / tir de préparation**

Fire delivered before an attack to weaken the enemy position. 18/12/97

i. **scheduled fire / tir sur horaire**

A type of prearranged fire executed at a predetermined time. 1/8/74

j. **scheduled target / tir à l'horaire - objectif à battre à l'horaire**

In artillery and naval fire support, a planned target on which fire is to be delivered at a specific time. 1/8/76

k. **series of targets / série d'objectifs**

In artillery and naval fire support, a number of targets and/or group(s) of targets planned to support a manoeuvre phase. A series of targets may be indicated by a nickname. 1/8/76

l. **program of targets**

A number of targets of a similar nature (e.g. counter battery program).

m. **group of targets**

A group of targets consists of two or more targets on which fire is desired simultaneously.

o. **superimposed / en superposition**

A term used in fire planning to indicate that an artillery unit is augmenting fire on a target and its fire may be lifted from that target by the authority implicit in its fire support role. 1/8/74

EXAMPLE TARGET LIST

SECURITY CLASSIFICATION: **NATO UNCLASSIFIED**

DTG: 041030Z

Target List Number   003 -

Line Number	Target Number	Target Grid Reference		Target Altitude	Target Description	Target Size/Radius	Target Attitude	Remarks
	(a)	(b)		(c)	(d)	(e)	(f)	(g)
01	MT 1460	10900	67980	170	Ammo Dump	400 x 800	1600	
02	MT1461	10810	72450	190	OP	10		
03	MT1462	11000	69810	150	Railway Line	1000	750	
04	MT1463	09990	71110	200	Infantry Coy	100		
05					-			
06					-			
07					-			
08					-			
09					-			
10					-			

SECURITY CLASSIFICATION: **NATO UNCLASSIFIED**

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FIRE PLAN EXAMPLE

SECURITY CLASSIFICATION:

Sheet ….1 .. of …1

References:
(1)   Target List No ……………
(2)   Operations Order No………… (if applicable)

Copy to….
Issuing Headquarters……………
Modifications By ……………
Place of Issue (may be coded)……………
Date / Time Group of Signature……………
Message Reference No……………

FIRE PLAN SCHEDULE
H HOUR 1036 (Not to be transmitted)

FIRE PLAN HOT SHOT

Line No	ORGANIZATION/FORMATION FORMATION (a)	FIRING UNIT (b)	SCHEDULED TARGETS (c)	ON CALL TARGETS (d)	REMARKS (e)
			-10 -5 H +5 +10		
1	1-2 FA (155 mm)	Bty A	AY1007 36 — AA1006 36 (b)		(a) 50% PROXIMITY/VT (b) 50% Delay
2	1-2FA (155 mm)	**Bty B**	AA0125 36 — AZ1002 36 (b)		(b) 50% Delay
3	1-2FA (155 mm)	Btys C & D	AA2002 R3 (d) — AA0019 R3		(d) 1 gun smoke
4	1-2 FA (155 mm)	Bty E	AA2002 **R3 (d)** — AA0019 **R3**	AA 1008 (e)	(d) 50% PROXIMITY/VT (e) 10 Rounds FFE.

Acknowledge Instruction:
Authentication
Distribution:

Last Name of Commander:
Rank:

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AArtyP-1(A)

ANNEX D TO
CHAPTER 5

Artillery Fire Plan Proforma

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

Target Information

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

Schedule

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

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CHAPTER 6

FIELD ARTILLERY DELIVERED, SCATTERABLE MINES

SECTION 1

GENERAL REMARKS AND RELATION TO AArtyP-5

601.   In certain operations it can be necessary that the field artillery of one nation is required to fire field artillery delivered a scatterable mines (SCATMIN) for another nation. Standard procedures have been developed and agreed upon.

602.   This chapter has to be read in conjunction with chapter 3, section 9 of the AArtyP-5. In this chapter the definitions, employment and responsibilities are described. The contents of that section describe therefore the tactical part of the use of scatterable mines, while this chapter concentrates on the more technical part of the use of scatterable mines.

SECTION II

REQUEST PROCEDURES

603.   Requests for field artillery delivered SCATMIN follow the request format outlined at Annex B. These requests are translated into fire mission orders by the delivery unit. When time is a critical factor (a target of opportunity), a request may be originated, from the manoeuvre element using field artillery communications and standard fire mission procedures. As indicated below, when the field artillery resources of another Nation are used, the necessary clearances are obtained by the originator and the request should be in fire mission format. Planned minefields are normally only used for defensive and delay operations when there are no other delivery means that suffice, and the commander is willing to employ field artillery for such activity. They are planned and delivered before battle is joined or delivered as on call targets. It would be normal to use national resources for this task, however, should it be necessary to employ the delivery system of another nation the information is to be provided in the format at Table 1 in Annex B. Also attached in a form which may be used for submission of planned minefield requests. (See Annex C).

604.   Target of opportunity minefields are normally based on one aim point. These minefields are normally fuzed for short SD. Should the target be mobile, the requesting unit must give sufficient reaction time for the mission to be actioned and the mines to arm. An example of a call for fire for an adjusted mission is shown at Tables 2 in Annex E. Missions are requested using standard call for fire procedure in accordance with Chapter 6. Note that this employment is not applicable to LARS.

SECTION III

TROOP SAFETY

605.   It is the responsibility of the requesting unit or formation to ensure troop safety. The delivery unit can be asked to provide the single or left and right aim point coordinates of the predicted minefield and its safety zone to permit detailed analysis by the requesting unit or formation. The delivery unit provides a SCATMINREP to the requesting unit for purposes of troop safety.

606.   Prior to the emplacement of a SCATMIN minefield, a warning is to be issued by the requesting unit or formation to all units who could be endangered either in their current locations or by their future actions. This warning is to be repeated one hour before expiration of the laid life in order to reduce possible risks and to advise the units of the cessation of the minefield's effectiveness. Minefield reports, warnings and records shall be made in the format given at Annex A. This is the responsibility of the requesting unit or formation, based upon data provided by the delivery unit.

607.   It has to be noted that the engineer adviser has a special responsibility towards reporting.

SECTION IV

MINEFIELD REPORTING

608.   Minefields consisting of SCATMIN shall be reported in accordance with Annex A. In particular, the delivery unit shall report the completion of laying and effective timing to the staff of the manoeuvre commander requesting the minefield using the format at Annex A. The engineer adviser is responsible for maintaining an up to date SCATMIN record.

SCATTERABLE MINEFIELD REPORT (1)

SUBJECT: SCATMINREP   *)
              SCATMINWARN   *)
              SCATMINREC   *)

<u>REFERENCES</u>.

<u>Line</u>	<u>Information/Data required</u>
A	APPROVING AUTHORITY
B	TARGET/OBSTACLE NUMBER
C	TYPE DELIVERY SYSTEM
D	TYPES AND NUMBER OF MINES
E	SELF-DESTRUCT/SELF-STERILISE/SELF-NEUTRALISE PERIOD
F	AIM POINTS/CORNER POINTS OF MINEFIELD (STATE WHICH)
G	SIZE SAFETY ZONE FROM AIM POINTS/CORNER POINTS (STATE WHICH)
H	UNIT EMPLACING MINES/REPORT NUMBER
J	PERSON COMPLETING THE REPORT
K	DATE/TIME/GROUP OF EFFECTIVENESS
L	REMARKS

*)   Check as appropriate

<u>REMARK</u>

For completion instructions, See next page.

COMPLETION OF THE SCATTERABLE MINEFIELD REPORT, WARNING & RECORD

A.   **Approving Authority.** Enter approving authority.

B.   **Artillery Target/Engineer Obstacle Number**. If the minefield is part of barrier plan, enter the number of major unit and the obstacle number. If the minefield is not part of a barrier plan or does not have an ARTILLERY TARGET NUMBER, then leave blank or enter N/A.

C.   **Type Delivery System**. Enter the type of delivery system that laid the minefield.

D.   **Type And Number / Density Of Mines**. Enter as follows:

Enter AP for anti-personnel mines.
Enter AT for anti-tank mines.
Enter AT/AP if both
Enter the number/density of each.

E.   **Self-Destruct / Self – Sterilise / Sell – Neutralise Period**. Enter the time period in which the minefield will Self-destruct, self-sterilise, or self-neutralise.

F.   **Aim Points / Corner Points Of The Minefield** (STATE WHICH). In requesting, if the system used to emplace the minefield uses a single aim point to deliver the mines, enter that aim point. If the system requires more than one aim point, enter the left and right aim points. If the system has distinct corner points enter those corner points. Based on this information, the delivery unit determines the necessary centre line and the aim points. When multiple aim points are required, that data is provided in SCATMINWARN, SCATMINREC etc and is originated by the delivery unit.

G.   **Size Safety Zone From Aim Points / Corner Points** (STATE WHICH).

If an aim point is given in line F, enter size safety zone from that aim point.

If corner points are given in line F, enter size safety zone from these corner points.

H   **Unit Laying Mines/Report Number**. Reports should be numbered consecutively by each unit. Enter the emplacing unit and their report number.

J.   **Person Completing The Report**. Rank and name of the person who completes the report.

K.   **Date/Time/Group Of Effectiveness**. Enter the date/time/group (based on information provided by the delivery unit for SCATMINWARN).

L.   **Remarks**. Enter any other items the reporting unit may consider important or if they are required by the Authorised Commander.

REQUEST PROCEDURES FOR SCATTERABLE MINE FIRE MISSIONS

TABLE 1

INFORMATION REQUIRED FOR PLANNED TARGETS

(See Paragraph ..09)

SERIAL	INFORMATION	EXAMPLE 1	EXAMPLE 2
1	Target Number	ZU 5730	TU 4230
2	Priority	1	2
3	Requesting Unit	HQ 4 CMBG	HQ 3 Armd Div
4	End Points / Aim Points (Notes 1, 5 and 6)	End Points NA 2150 6650 NA 2150 6690	End Points LB 3276 1887 LB 3440 1685
5	Minefield Width and Depth	400 * 400	1500
6	Type of Mines, Density (Note 2)	RAAMS, HIGH ADAM, LOW	MLRS
7	Self Destruct (SD) Time (Note 3)	Short / Long	5
8	Scheduled or On Call	281100Z within 30 min FFE	TOT 121530B
9	Caution NLT Emplacement Time	(If Required)	
10	Approval Authority	(If different from requested)	
11	Date Time Group of Request (Note 4)	280630Z	121015B

Notes:
1. Grid co-ordinates accurate to +/~ 10 metres.
2. Density required only for RAAMS/ADAM.
3. RAAMS/ADAM SD Times:
   Short - 4 hours,
   Long - 48 hours.

4. Approval authority refers to Target Number and Date-Time Group of Request.

5. When end points are given it is the responsibility of the delivery unit to translate these details into aim-point co-ordinates.

TABLE 2

EXAMPLE ADJUSTED MISSION

(See Paragraph 910)

EXAMPLE 1	EXAMPLE 2
" (Call Sign) THIS IS (Call Sign) "	" (Call Sign) THIS IS (Call Sign) "
"FIRE MISSION BATTERY"	"ADJUST FIRE, RAAMS AND ADAM"
"GRID 572861 DIRECTION 2400"	"GRID 572861"
"COMPANY IN BMPs. RADIUS 300 STATIC'	"DISMOUNTED INFANTRY COMPANY" SUPPORTED BY 10 TANKS. 300 X 900" (Notes 1, 2 and 3)
"HIGH ANGLE"	
"CONVERGE"	
"RAAMS AND ADAM"	
"ADJUST FIRE", (Notes 1, 2 and 3)	

Notes:1.	Adjustment is carried out with DPICM M483Al in the self-registering mode.

2.	Following adjustment the observer would order FFE and would receive 24 RAAMS and 6 ADAM total. This is the standard FFE for RAAMS/ADAM target of opportunity.

3.	All guns in the firing unit are to be CONVERGED onto the centre-point of the module.

MINEFIELD PLANNING SHEET

FIELD ARTILLERY DELIVERED MINEFIELD PLANNING SHEET		
SECTION A – MINEFIELD DATA		
1 TARGET NUMBER	2 PRIORITY	3 REQUESTER
4 MINEFIELD END POINTS (CO-ORDINATES) FROM	TO	
5 MINEFIELD DEPTH	6 MINEFIELD WIDTH	
7 ADAM (APERS) DENSITY	8 RAAMS (AT) DENSITY	
9 SELF DESTRUCT TIME SHORT ☐ LONG ☐	10 SCHEDULED MINEFIELD _____HOURS_____MIN. ON CALL ☐	
11 CAUTION NLT. EMPLACEMENT TIME	12 APPROVAL AUTHORITY	13 DATE TIME GROUP.
14 REMARKS		
SECTION B - G3/S3/ENG		
15 DTG. RECEIVED	16 DTG SAFETY ZONE DISSEMINATION	
17 REMARKS		
SECTION C – FSE / FSO		
18.DTG TO UNIT	19 DTG FROM UNIT	20. DTG TO G3/S3/ENG.
21 REMARKS		
SECTION D - FDC DATA		
22 TARGET NUMBER	23 FIRING UNIT	24 RANGE TO MINEFIELD CENTRE
25 TRAJECTORY ADAM ☐ LOW ☐ HIGH	RAAMS ☐ LOW ☐ HIGH	26 DELIVERY TECHNIQUE MET + ΔV TRANSFER ☐ OBSERVER ADJUSTED. ☐
27. AIM-POINT CO-ORDINATE (S) (LEFT AND RIGHT OR SINGLE) ADAM: FROM_____ TO_____ RAAMS: FROM_____ TO_____		
28 DTG MISSION COMPLETED		
29 REMARKS		

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CHAPTER 7

BATTLEFIELD ILLUMINATION

SECTION I

GENERAL

701.   **Aim**. The aim of this chapter is to standardise, visible light illuminating procedures for use by NATO forces when operating together on land.

702.   NATO forces subscribe to the requirements, limitations and principles, and employ the techniques, patterns, method of requesting and adjusting illumination, and preparing the Illumination Plan as described in this chapter. It must be understood that the artillery is not responsible for the production of the Illumination Policy or Plan, albeit that artillery staffs assist in their formulation.

SECTION II

GENERAL PROCEDURES

703.   **Requirements**. The capability to illuminate the battlefield, at an appropriate point, is essential to the full use of most target identification and engagement systems and to the development of maximum combat power. Requirements for illumination can originate at any level from an individual soldier to a formation headquarters.

704.   **Limitations**. The use of illumination has the following inherent difficulties:

   a.   Illumination can compromise measures for the concealment of friendly elements in the area.

   b.   Inconsistent orders with regard to the use of illumination by different units/formations along a front resulting in an uneven application of illumination policies along the FEBA, which can make the locating of friendly force unit/formation boundaries relatively simple for the enemy.

   c.   Use of illumination by one unit can interfere with the operation of night observation equipment in use by adjacent units.

705.   **Principles**. The following general principles govern illumination:

a.   **Command and Control**:

(1)   The use of illumination is a command responsibility.

(2)   Command and control must be exercised by the manoeuvre commander in the area to be illuminated.

(3)   Illumination must follow the Commanders illumination policy and be co-ordinated with adjacent units and formations to prevent disclosure of positions and operations to the enemy and to preclude the possibility of interference with friendly image intensification, and thermal imagery equipment.

(4)   Co-ordination will normally be accomplished by the manoeuvre commander in the area to be illuminated.

b.   **Employment**:

(1)   Illumination, once provided to support troops, must be continued without interruption until it is no longer required. Illumination missions will have to be carefully controlled when committing scarce stocks of artillery and mortar illuminants and consideration should be given to other battlefield illuminants.

(2)   Illumination should, whenever possible, be provided by a source not directly in contact with the enemy being engaged. A unit providing such support must be in direct communication with the commander of the unit/formation in contact.

(3)   Illumination when used should be provided by two or more independent sources to ensure continued availability and reliability.

(4)   Illumination should be provided by the highest level practicable in order to conserve illumination resources available to subordinate echelons.

SECTION III

MISSION PROCEDURES

706.   General. Mortar illuminant is used in instances which arise unexpectedly and in which speed of illumination is essential.

707.   Artillery and Mortar Procedures. Call for fire procedures are to be in accordance with Chapter 6.

708.   Planned Illumination Tasks. The call for fire must include the following information:

   a.   Date illumination is required.

   b.   Purpose (manner in which requesting unit/formation intend to employ the illumination).

   c.   Time and duration of illumination requested (e.g., "3 Minutes, On Call as of 2150 Hours".).

   d.   The grid reference and height of the point(s) or areas(s) to be illuminated.

   e.   Method of control.

709.   **Naval Gunfire Procedures**. See ATP-4.

SECTION IV

THE ILLUMINATION PLAN

710.   **General**. The illumination plan is:

   a.   Prepared and co-ordinated at the appropriate level.

   b.   Based upon requests of supported units or as directed by higher formation headquarters.

   c.   Included in operational plans and orders, normally -as an Annex.

   d.   Included in the Field Artillery Support Plan.

711.   **Co-ordination**. Co-ordination is accomplished at all levels to ensure the integration of battlefield illumination with fire support and the co-ordination of the use of all means of illumination.

712.   **Format**. The illumination plan may consist of the same elements and have the same format' as the artillery fire plan (Chapter .8) with the following changes:

   a.   As the expenditure of rounds largely depends upon the atmospheric conditions, the number of rounds to be expended for each mission in the

table will be replaced by the duration of the mission, given in minutes, and recorded in the "Remarks" column.

b.   For all missions the size of the area to be illuminated given in the target list in the column "Size" is expressed as the diameter or its rectangular dimension in metres. In the case of a mission to be fired by an artillery unit the pattern of illumination (Chapter 6) will also be given in the column remarks.

c.   The "Artillery Fire Plan Table" becomes the "Illumination Plan Table".

CHAPTER 8

ARTILLERY SURVEY

SECTION 1

GENERAL

801. Many Nations now use Inertial Navigation Systems (INS) and/or Global Positioning System (GPS) to produce both fixation and orientation while retaining the capability to use traditional survey techniques. The purpose of this Chapter is to:

  a. Standardize the method of expressing artillery survey accuracy criteria for weapon platforms, target acquisition, surveillance and meteorological systems.

  b. Standardise which data is to be recorded for artillery survey control points and fixation points and the proforma to be used by NATO forces.

802. An artillery survey control point is defined for use in this Chapter as a point at which the co-ordinates and the altitude are known and from which the bearings/azimuths to a number of reference points are also known.

803. A fixation point differs from a survey control point in that the fixation point carries no data for orientation. The prime function of a fixation point is to allow INS systems to be updated for fixation.

SECTION II

SURVEY ACCURACY REQUIREMENTS

804. Survey accuracy requirements are expressed in terms of probable error (PE), Circular Error Probable (CEP) and Standard Deviation (SD or SIGMA).

805. PE and CEP are derived from the positive standard deviation of the measurement (sigma - σ) as follows:

  a. σ = Positive standard deviation of the measurement (sigma).
  b. $PE = 0.6745\,\sigma$.
  c. $CEP = 1.1774\,\sigma$.
  d. $CEP = 1.7456\,PE$.

Notes.

-PE is a value which, is exceeded as often as it is not i.e. it has a 50% probability of occurrence.

-CEP is the radius of the circle centred about the true position, such that any measured or calculated position has a 50% probability of lying within that circle.

806.   The NATO Standards for orientation and fixation are:

System	Orientation (PE) (Mils)	Fixation (CEP) (M)	Altitude (PE) (M)	Remarks
Guns and rockets (except MLRS)	1.0	20	10	If this standard is not achieved, the fact must be reported
MLRS	Only fix required. MLRS has a Gyro laying system.	35	10	
Meteorological Tracking Equipment	5.0	50	10	

SECTION III

FIXATION POINTS AND ARTILLERY SURVEY CONTROL POINTS

807.   A survey control point enables users to fix and orient their equipment on the grid system applicable to the area while a fixation point provides only fixation. Fixation point data may be published on a map or annotated air or satellite photograph but must contain the same data as is used on the survey control point proforma except for the details at sub-paragraphs 1108 f, l and j.

808.   The artillery survey control point proforma (Annex B) allows the survey control point to be identified and provides the necessary data. The following data is required:

    a.   A control point number and possibly a name of the locality.

    b.   A map series and sheet number.

    c.   The GRID co-ordinates and altitude (above sea level) of the control point.

    d.   The type of grid system used. The standard is WGS 84.

    e.   The accuracy of the data.

8 - 2

      f.   The survey methods used.

      g.   A diagram showing the location of the point. This is given to enable the point to be found.

      h.   The description of the point i.e. how it is marked on the ground.

      i.   The grid bearings/azimuths in mils to at least four reference objects. Two of these reference objects must be between 100 and 500 metres of the control point.

      j.   A description and sketch showing the exact point of lay and the approximate distance of each object from the control point.

      k.   An information block containing:

            (1)   The unit producing the data.

            (2)   By whom prepared.

            (3)   By whom checked.

            (4)   The date.

Notes.

-There are several ways of writing data by hand, e.g. some nations use 17.11 while others use 17,11. Either method may be used but they must not be mixed.

-When an artillery survey control point is near a UTM zone border and two sets of data are available, a separate proforma must be prepared for each UTM zone.

-The Artillery Survey Control Point Proforma may be printed in national languages but the format must not be altered.

BEARING PICKET CARD/ARTILLERY SURVEY CONTROL POINT					
UTM Zone	UTM Square	Station Name			**Accuracy**
		Station Number			E + N:
		Map Series & Sheet Number			Azimuth:
					Altitude:
How Marked		E:		N:	Altitude
		Long:		Lat:	

N

Description	Sketch	Distance	Grid Bearing/Azimuth
			Mils:
			Degrees:
			Grads:
			Mils:
			Degrees:
			Grads:
			Mils:
			Degrees:
			Grads:
			Mils:
			Degrees:
			Grads:
			Mils:
			Degrees:
			Grads:
Method of Determination		Unit:	
Horzontal:		Produced By:	
Vertical:		Checked By:	
Bearing/Azimuth		Date	
Notebook Reference:			

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CHAPTER 9

METEOROLOGY

SECTION I

RATIFIED METEOROLIGICAL STANAGs

901.   Because there will be occasions when the artillery of one nation may wish to use meteorological data produced by another nation, standard forms of meteorological message structure and standards have been agreed.

902.   The following table shows which nations have agreed to use the procedures laid down in the following STANAGs as at 12th November 2001:

STANAG	Title	National Restrictions or Special Considerations
4044	Adoption of a Standard Atmosphere.	SP not ratified.
		GR will only receive and exploit the messages due to lack of equipment.
		PL, CR & HU not yet ratified.
4131 (Sect. II)	Adoption of a Standard Character by Character Meteorological Message Format.	SP in process of ratification.
		GR will only receive and exploit the messages due to lack of equipment.
		PL Not yet ratified.
4103 (Sect. III)	Format for Request for Meteorological Messages for Ballistic and Special Purposes.	GR will only receive and exploit the messages due to lack of equipment.
		PL, CR & HU not yet ratified.
		US does not predict periods of Met validity. Data is assumed to be valid until the next message is received. During combat the US normally provides new data on a two (2) hour schedule.
4082 (Sect. IV)	Adoption of Standard Artillery Computer Meteorological Message.	PO. Will implement when the manuals are available.
		GR. Will only receive and exploit the messages due to lack of equipment.
		TU. Data will only be passed by voice and not by tape.
		US see 4103.
		GE only produces and uses up to Line 26 (20,000m).
		PL, CR & HU not yet ratified.
4061 (Sect. V)	Adoption of a Standard Ballistic Meteorological Message.	GR. Will only receive and exploit the messages due to lack of equipment.
		US see 4103.
		GE does not use this message but can provide up to Line 15.
		NO can only deliver the MetCM (STANAG 4082)
		PL, CR & HU not yet ratified.
4140 (Sect.VI)	Standard Target Acquisition Meteorological Messages	GR. Will only receive and exploit the messages due to lack of equipment.
		NO will not implement.
		PL, CR & HU not yet ratified.

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CHAPTER 10

MISCELLANEOUS ARTILLERY REPORTS AND RESPONSES

SECTION I

GENERAL

1001. **Aim.** The aim of this chapter is to give an overview of all reports and responses used by field artillery (e.g. Deployment Command Message or Call For Fire). The chapter does not only deal with specific artillery messages, but also with other relevant messages to be exchanged with other branches and services.

1002. **Scope.** The chapter describes the content of artillery messages. ASCA programme messages were used as a basis, messages from other Chapters of this STANAG were included mainly without modifications. Together these messages form a common basis for the communication between nations, no matter if they are exchanged in writing, verbally or in another method. The message text formats of the CTIDP are not affected by the descriptions in this Chapter.

1003. **Detailed contents.** The aim of this chapter is not to give specific technical details for any message, but to give guidance for the contents. MET Messages are not described here but in the related STANAG.
More details can be found in APP-9, Compendium of NATO LAND Forces Messages, or CTIDP, ASCA 012.

SECTION II

OVERVIEW

MESSAGE TITLE	MESSAGETYPE IDENTIFIER
FIRE UNIT	
Ammunition Status	AFU.AMS
Deployment Command	AFU.DCMD
Fire Unit Status	AFU.FUS
ARTILLERY TARGET INTELLIGENCE	
Artillery Target Report	ATI.ATR
Target Information Request	ATI.TIR

MESSAGE TITLE	MESSAGETYPE IDENTIFIER
FIRE MISSION	
Call For Fire	FM.CFF
Fire Mission Command	FM.FMC
Message to Observer	FM.MTO
Subsequent Adjustment	FM.SUB
MET	
Request for MET Support	MET.RFM
MODIFICATION	
Attack Criteria	MOD.ATTACK
Exclude Criteria	MOD.XCLUDE
NON-NUCLEAR FIREPLANNING	
Warning Order (Establish a Fireplan Message)	NNFP.COMFP
Fireplan	NNFP.FP
Reserve Fire Unit	NNFP.RESFU
SUPPORT	
Air Space Coordination Area	SPRT.ACA
Battlefield Geometry	SPRT.GEOM
SYSTEM	
Request for Report	SYS.RFR
Reply or Remarks Message	SYS.RRM

SECTION III

MESSAGE PURPOSE & CONTENTS

1004. This section describes the purpose and possible content of each message based on Information Exchange Requirement (IER). Also the relationship between messages is described.
Some messages call for a specific content, other information is optional (O), in some cases conditionally (C). If no indication is given, the content of the message is mandatory.

1005. **Special Considerations.** NATO Forces are to use the BOMBREP format shown in APP-9, Chapter 2, when reporting enemy bombing, shelling, mortaring, rocketing and location reports. ATP-45 covers reporting required when NBC weapons are involved.

1006. **Ammunition Status Message.**

    a.   This message will be used to establish or delete an ammunition status for a fire unit in current or planned operations.

    b.   Each new Ammunition Status Message related to Firing Unit Status Message delete the previous one. A single Ammunition Status Message of a firing unit is based on the related Firing Unit Status Message. (See also Firing Unit Status Message.)

    c.   The detailed contents of this message are:

        (1)   Addressee

        (2)   Originator

        (3)   Message Type: Ammunition Status

        (4)   Fire Unit: Section(O)/Platoon(O)/Battery/Battalion/Regiment or Brigade

        (5)   Effective DTG

        (6)   Fireplan Name (O)

        (7)   Projectiles or Rockets (C): Type and Number

        (8)   Propellants (C): Type and Number

        (9)   Fuses (C): Type and Number

1007. **Deployment Command Message.**

    a.   The Deployment Command Message is used to transmit assignments and changes to pre-planned fire positions and movement orders for battalion, regiment, or fire units.

    b.   The purpose of the message defines its content.

    c.   The detailed contents of this message are:

        (1)   Addressee

        (2)   Originator

        (3)   Message Type: Deployment Command

(4)   Cancel the existing Deployment Command

(5)   Order Name

(6)   Fire Unit (C): Section(O)/Platoon(O)/Battery/Battalion/Regiment or Brigade

(7)   Liaison Location (C)

   (a)   UTM Co-ordinates with Grid Zone

   (b)   Liaison Time: DTG

(8)   Tactical Mission assigned to a fire unit (O):

   (a)   DS, GS, GSR, R

   (b)   Zone of Fire: Name or UTM Polygon with Grid Zone

   (c)   Mission assignment: DTG

   (d)   Mission termination: DTG

(9)   Manoeuvre Unit Supported (O): Name

(10)   Artillery Unit Reinforced (O): Name

(11)   Move Location or Route (O): UTM Polygon with Grid Zone

(12)   Azimuth of Fire (O): Mils Azimuth or Bearing of Fire in mils

(13)   Move Time (O): Start and End Time (DTG)

(14)   Special Remarks (O)

1008. **Fire Unit Status Message.**

   a.   To standardise the method used to establish or delete the status for fire units in current or planned operations for the purpose of making tactical fire control decisions.

   b.   The detailed contents of this message are:

   (1)   Addressee

(2)   Originator

(3)   Message Type: Fire Unit Status

(4)   Cancel the existing artillery target report

(5)   Cancel the existing Fire Unit Status

(6)   Fire Unit: Section(O)/Platoon(O)/Battery/Battalion/Regiment or Brigade

(7)   DTG

(8)   Fireplan Name (O)

(9)   Fire Unit Status (C):

    (a)   Ready or Out

    (b)   DTG return to action (C)

(10)   Fire Unit Weapon (C): Number/Weapon type/Model
        (e.g. 4 155 mm M109A3)

(11)   Minutes to respond to a fire mission (O)

(12)   Unit Location (O): UTM Co-ordinates or UTM Polygon with Grid Zone

(13)   Azimuth of Fire in Mils (C): Mils Azimuth or Bearing of Fire in mils

(14)   Minimum and Maximum Range in Meter (C)

(15)   Rate of Fire (O)

    (a)   Maximum Rate of Fire: Number of rounds per minute for the first
        3 minutes period.

    (b)   Sustained Rate of Fire: Number of rounds per minute after the
        first 3 minutes period.

(16)   Left and Right Traverse Limit in Mils (C)

(17)   Tactical Mission assigned to a fire unit (O):

      (a)   DS, GS, GSR, R

      (b)   Zone of Fire: Name or UTM Polygon with Grid Zone

(18)   Manoeuvre Unit Supported (O): Name

(19)   Artillery Unit Reinforced (O): Name

(20)   Nuclear Radiation Status (O)

      (a)   Nuclear Radiation Status of the Fire Unit in Rads.

      (b)   Description of the Fire Unit Vulnerability: Casualties to personnel and/or damage of material.

1009. **Artillery Target Report.**

a.   This message will be used to transmit target information in the form of complete target records either on the initiative of the sender or in response to one-time requests for information.

b.   This message shall also be used to establish or delete target information.

c.   The detailed contents of this message are:

(1)   Addressee

(2)   Originator

(3)   Message Type: Artillery Target Report

(4)   Target Number

(5)   DTG

(6)   Target Information:

      (a)   Target Location and Grid Zone

      (b)   Target Description

      (c)   Target Strength

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        (d)   Target Size

    (7)   Target Acquisition Information

        (a)   Agency

        (b)   Location Accuracy

        (c)   Evaluation Reliability

    (8)   Other information

        (a)   Target Permanence

        (b)   Target Status (mission fired/confirmed target)

        (c)   Mission Surveillance (target disposition/number of causalities)

        (d)   Information request (category/number)

        (e)   Special Remarks

1010. Target Information Request Message.

    a.   This message will be used to request target information either as a one-time query or as a standing request for target information.

    b.   The detailed contents of this message are:

    (1)   Addressee

    (2)   Originator

    (3)   Message Type: Target Intelligence Request

    (4)   One Time Request or a Standing Request

    (5)   Response Level

        (a)   A Count of Targets meeting the Search Criteria

        (b)   Detailed Artillery Target Reports of the Targets meeting the Search Criteria

    (6)   Cancel the Existing Standing Request (O)

(7)   DTG for the Search Criteria (C)

(8)   Target Number (C)

(9)   Standing Request Number (C)

(10)   Search Area (C):

    (a)   Rectangular Area with 2 UTM Points and Width in Meters (O)

    (b)   Circular Area with one UTM Point and the Radius in Meters (O)

    (c)   Grid Zone (O)

(11)   Search Criteria's (C): Target Description:

    (a)   Target Type/Subtype/Degree of Protection

    (b)   Target Size: Lower and Upper Length/ Lower and Upper Width in Meters

    c)   Number of Target Elements: Lower and Upper Strength Limit.

(12)   Fire Mission Indicator (O)

    (a)   Report only targets that have been fired or

    (b)   Report only confirmed targets

(13)   Evaluation Reliability (O): Excellent/Good/Fair

1011. **Call for Fire Message.**

a.   This Message will be used to transmit initial Fire for Effect requests for fire and/or orders to fire.

b.   The detailed contents of this message are:

(1)   Addressee

(2)   Originator

(3)   Message Type: Call for Fire

(4)   Target Number

(5)   Number of Guns (C)

(6)   Target Location

      (a)   UTM Easting

      (b)   UTM Northing

      (c)   Altitude

      (d)   Grid Zone

(7)   Target Description

      (a)   Target Type

      (b)   Target Subtype

      (c)   Degree of Protection

      (d)   Number of Target Elements

(8)   Target Size: Length/Width/Attitude in Meters

(9)   Accuracy of the Target Location in Meters (O)

(10)   Trajectory Type (O): Low or High

(11)   Munitions in Effect (O)

(12)   Number of Volleys/Rockets (C)

      (a)   Projectile (O)

      (b)   Fuse (C)

      (c)   Percentage of Effects Required (C): 1 to 30 %

(13)   Method of Control

      (a)   AMC/RWR/TOT/TTF/WR

      (b)   Time on Target: Hours and Minutes (C)

       (c)   Duration of Time Window (C): Length of the "RWR" period in Minutes

    (14)   Firing Interval (C)

       (a)   Interval between Volleys expressed in Seconds

       (b)   Duration of Fire in Seconds

    (15)   End of Mission (C): End of Mission processing shall occur upon completion of Fire.

1012. **Fire Mission Command Message.**

a.   To standardise the method used to transmit from the Supported Nation to the Supporting Nation a command to Check Fire, Cancel Check Fire, Cease Loading, Cancel Cease Loading, and Fire.

b.   The Message can also be used to transmit Ready, Rounds Complete, and Cannot Comply, and to transmit the completion of a fire mission from the Supporting Nation to the Supported Nation.

c.   The detailed contents of this message are:

    (1)   Addressee

    (2)   Originator

    (3)   Message Type: Fire Mission Command

    (4)   Command (C):

       (a)   Check Fire

       (b)   Cancel Check Fire

       (c)   Cease Loading

       (d)   Cancel Cease Loading

       (e)   Fire

    (5)   DTG of the Order (C)

(6)   Fireplan Name (C)

(7)   Target Number

(8)   Target Instance (Instance of a target related to a specific fireplan)

(9)   Report to Observer (C)

(a)   Type of Report: Ready to Fire, Rounds Complete, Cannot Comply, Shot, Execution Complete

(b)   Reason for "Cannot Comply" (C)

(10)   End of Mission (C): Yes or no.

1013. **Message To Observer.**

a.   This message will be used to transmit informations to observer or originator in response to a call for fire on a target of opportunity.

b.   The detailed contents of this message are:

(1)   Addressee

(2)   Originator

(3)   Message Type: Message to Observer

(4)   Target Number

(5)   Number of Guns (C)

(6)   Munitions

(a)   Number of Volleys/Rockets

(b)   Projectile /Rockets

(c)   Fuse (C)

(7)   Trajectory (O): Low or High

(8)   Method of Control

(a)   AMC/RWR/TOT/TTF/WR

(b)   Time: Hours and Minutes (C)

(c)   Duration of Time Window (C): Length of the "RWR" period in Minutes

(9)   Observer Data (O)

(a)   Time of Flight

(b)   Range Probable Error in Meters

(c)   Angle T in Mils

1014. **Subsequent Adjustment Message**

a.   This Message will be used to transmit updated grid locations, to Repeat Fire for Effect and/or to terminate missions.

b.   The detailed contents of this message are:

(1)   Addressee

(2)   Originator

(3)   Message Type: Subsequent Adjustment

(4)   Target Number

(5)   Trajectory (O): Lower or High

(6)   Munitions (O)

(a)   Number of Volleys/Rockets

(b)   Projectile /Rockets

(c)   Fuse (C)

(7)   Target Location

(a)   UTM Easting

(b)   UTM Northing

(c)   Altitude

(d)   Grid Zone

(8)   Method of Control (O)

(a)   AMC/RWR/TOT/TTF/WR

(b)   Time: Hours and Minutes (C)

(c)   Duration of Time Window (C): Length of the "RWR" period in Minutes

(9)   Firing Interval (O)

(a)   Interval between Volleys expressed in Seconds

(b)   Duration of Fire in Seconds

(10)   End of Mission (C)

(11)   Surveillance

(a)   Target Disposition at the end of mission

(b)   Number of Casualties

1015. **Request for MET.**

a.   This Message will be used to request meteorological support.

b.   The detailed contents of this message are:

(1)   Addressee

(2)   Originator

(3)   Message Type: Request for MET

(4)   MET Type/Global Octant

(a)   METR (MET Request)

(i)   5 for Basic Wind Report (NBC.BWR)

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(ii)   6 for Target Acquisition (MET.TA)

(iii)   7 for Chemical Downwind Report (NBC.CDR)

(iv)   8 for Effective Downwind Report (NBC.DER)

(v)   9 for Computer (MET.CM)

(b)   Global Octant

(5)   MET Area (Single Point in Geographic Co-ordinates)

(6)   Time Window for MET Support (DTG)

(7)   MET Data Limits

(a)   Lowest and highest altitude band

(b)   Hourly Interval between Messages

1016. **Modification-Attack Criteria Message.**

a.   This message is used to establish or cancel desired effects or standard volleys factors for specified target types/subtypes; to transmit deletions or previous attack modifications; or to change effect type to a volley type target.

b.   The detailed contents of this message are:

(1)   Addressee

(2)   Originator

(3)   Message Type: Attack Criteria

(4)   Cancel the existing attack criteria

(5)   Fireplan Name (O)

(6)   DTG

(7)   Target Description

(a)   Target Type

(b)   Target Subtype

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(c)   Degree of Protection

(8)   Percentage of Effects Required (C): 1 to 30 % or

(9)   Maximum Number of Volleys fired on this specific Target (C)

1017. **Modification-Exclude Criteria Message.**

a.   This message is used to establish or delete exclusions for specified fire units, weapon systems, or combinations of munitions by either weapon type or fire unit, for current operations or for a fireplan.

b.   The detailed contents of this message are:

(1)   Addressee

(2)   Originator

(3)   Message Type: Exclude Criteria

(4)   Cancel the existing exclude criteria

(5)   Fireplan Name (O)

(6)   DTG

(7)   Fire Unit (O): Section(O)/Platoon(O)/Battery/Battalion/Regiment or Brigade

(8)   Weapon Type Excluded (C) e.g. 155mm M109A3

(9)   Projectile Excluded (C) e.g. DPICM

(10)   Propellant Excluded (C) e.g. Green

(11)   Fuse Excluded (C) e.g. PD

1018. **Warning Order.**

a.   This message is used to establish a fireplan, or to establish or cancel H-Hour.

b.   This message is also used to inform the supporting nation that it will be included in the execution of a specific fireplan. In addition, all the details will be given required for a timely preparation.

c.   The detailed contents of this message are:

(1)   Addressee

(2)   Originator

(3)   Message Type: Warning Order

(4)   Fireplan Name

(5)   DTG of the message

(6)   Planned Time for Execution (H-Hour or Time Window)

(7)   List of participating Firing Units (O)

(8)   A Count Number of Projectiles/Rockets (O)

(9)   Zone of Fire (Polygon with UTM Co-ordinates) (O)

(10)   Planned AMA or ARA (O): Polygon with UTM Co-ordinates

(11)   Special Remarks

1019. **Fireplan Message.**

a.   This message will be used to transmit fireplan targets and/or orders in a specified target list, to delete fireplan targets and/or orders from a specified target list in a fireplan or to delete an entire plan.

b.   **Warning Order.** Before a Fireplan will be transmitted, a Warning Order would always be given. The warning order could be a complete order but also as a minimum the name of the fireplan (see Establish a Fireplan Message).

c.   **H-Hour.** With the transmission of the H-hour and the fireplan name, a specific fireplan will be activated.

d.   **Further information exchange.** For planning purposes the transmission of fire unit and ammunition data from the supporting nation is recommended. Additionally the transmission from the supported nation of related FSCM to a fireplan can be necessary (use of battlefield geometry message).

e.   The detailed contents of this format is shown in Chapter 8, Annex C, Fireplan Schedule and Annex D, Artillery Fireplan Proforma.

1020. **Reserve Fire Units Message.**

a.   This message will be used to transmit a directive to reserve a specific fire unit or all fire units in a fireplan during a specified time interval.

b.   The detailed contents of this message can be:

(1)   Addressee

(2)   Originator

(3)   Message Type: Reserve Fire Units

(4)   Cancel the existing reserve Fire Units

(5)   Fireplan Name

(6)   Fire Unit: Section(O)/Platoon(O)/Battery/Battalion/Regiment or Brigade

(7)   Reservation Time:

(a)   Reservation Start Time (DTG)

(b)   Reservation Stop Time (DTG)

1021. **Airspace Coordination Area Message.**

a.   This message will be used to establish or delete airspace coordination areas (ACA).

b.   The detailed contents of this message can be:

(1)   Addressee

(2)   Originator

(3)   Message Type: Airspace Coordination Area

(4)   Cancel the existing Airspace Coordination Areas

(5)   Fireplan Name (O)

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(6)   ACA Name

(7)   Duration

(a)   From (DTG)

(b)   To (DTG)

(8)   Grid Zone

(9)   Corridor A (Corridor B start point closed Corridor A):

(a)   UTM Easting

(b)   UTM Northing

(c)   Width in Meters

(d)   Minimum Altitude in Meters

(e)   Maximum Altitude in Meters

This Corridor can be repeated up to 7 times, initial plus 6.

(10)   End Point

(a)   UTM Easting

(b)   UTM Northing

1022. **Battlefield Geometry Message.**

a.   This message will be used to establish or delete battlefield geometry's; e.g., avenue of approach, axis of advance, fire support coordination measures, target areas, zones of fire, etc., in support of land combat operations for current operations or for a Fireplan.

b.   The detailed contents of this message can be:

(1)   Addressee

(2)   Originator

(3)   Message Type: Battlefield Geometry

(4)   Cancel the existing Battlefield Geometry

(5)   Geometry Duration

     (a)   From (DTG)

     (b)   To (DTG)

(6)   Battlefield Geometry

     (a)   Type (e.g. FSCL)

     (b)   Name

(7)   Establishing Authority

(8)   Fireplan Name (O)

(9)   Polygon Description (C)

     (a)   Point Sequence Number

     (b)   UTM Easting

     (c)   UTM Northing

This Point can be repeated up to 9 times, initial plus 8.

(10)   Circular Geometry (C)

     (a)   UTM Easting

     (b)   UTM Northing

     (c)   Radius in Meters

(11)   Grid Zone

(12)   Ammunition Restricted (C) (multiple restrictions are allowed)

(13)   Unit name (C) (Unit name can be repeated up to 2 times): The first unit
       name determine the unit to the left of the boundary and the second
       name the unit to the right.

1023. **Request For Report Message.**

a.   This message is used to establish or delete a request for ammunition status report, fire unit status report, fires sites, battlefield geometry, friendly unit locations, Fireplan target lists and other applicable reports.

b.   The detailed contents of this message can be:

(1)   Addressee

(2)   Originator

(3)   Message Type: Request for Report

(4)   Cancel the existing Report Requests

(5)   DTG

(6)   Fireplan Name (C)

(7)   Report Request (C)

(a)   Report Type

(i)   Ammunition Status

(ii)   Fire Unit Status

(iii)   Attack Criteria

(iv)   Exclude Criteria

(v)   Reserve Fire Unit

(vi)   Air Space Co-ordination Area

(vii)   Battlefield Geometry and

(viii)   All NBC Messages

(b)   Report Frequency (once, as chanced, hourly, every 2 hours, ..., every 12 hours, daily, weekly and monthly)

(c)   DTG for which the first report is requested (O)

(d)   DTG for which the last report is requested (O)

(8)   Request for a Fireplan target list (C)

(9)   Geometry Type and Name (C)

(10)   Request a Report for a Fire Unit (C): Section(O)/Platoon(O)/Battery/ Battalion/Regiment or Brigade

1024. **Reply or Remarks Message.**

a.   This message will be used to transmit a reply to a received message or to transmit plain text information as required, e.g., error response, amplifying instructions, operational orders, Fireplan execution/cancelling, etc.

b.   The detailed contents of this message can be:

(1)   Addressee

(2)   Originator

(3)   Message Type: Reply or Remarks

(4)   Message Reference (O)

(a)   Message Type

(b)   Originator

(c)   DTG

(5)   Message Reply (C)

(a)   WIL   - Message understood; Execution guaranteed

(b)   ACK   - Message understood; Execution not guaranteed

(c)   EMD   - Message understood; Execution must be modified

(d)   NON   - Message understood; Execution impossible

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(e)   VER   - Message not understood; Verification requested

(f)   COM - Execution of message completed.

(6)   Plain Text (353 Digits or Letters).

CHAPTER 11

FIELD ARTILLERY INTEROPERABILITY AND LIAISON

SECTION I

GENERAL

1101. Interoperability between NATO field artillery units requires an understanding of *NATO Land Forces Doctrine* (ATP-35) and *NATO Field Artillery Tactical Doctrine* (AArtyP-5). Detailed Information Exchange Requirements and references to standards covering these requirements, are in APP-9 and Common Technical Interface Design Plan (CTIDP).

1102. Fire support liaison officers (FSLO) must be exchanged when artillery formations or units enter a command and control relationship with artillery formations or units of a different nationality.

1103. The purpose of this exchange is to establish and maintain close, continuous communication between formations and units. An artillery FSLO speaks on behalf of the artillery commander and should be an experienced officer of appropriate rank who has the confidence of the commander. The FSLO should be fully aware of his own commander's mission, intent, plan and main effort. The FSLO should also have a detailed knowledge of the parent formation or unit and its equipment, order of battle (ORBAT) and tactical doctrine.

SECTION II

DUTIES OF AN ARTILLERY FIRE SUPPORT LIAISON OFFICER (FSLO)

1104. The duties of an artillery FSLO are:

a. To assist in the passage of fire orders, other artillery orders – such as deployment orders – and information between the two units or formations.

b. To convey own commander's verbal and written orders and instructions, including fire plans. The FSLO must be prepared to amplify the commander's intent and points of detail when appropriate.

c. To provide his own commander with situational awareness of latest information and intentions.

1105. <u>Information Requirements</u>. In addition to the guidance in STANAG 2101 (Duties of a Liaison Officer), the following information is to be obtained by an artillery FSLO prior to departure and updated on a regular basis:

    a.   Artillery commander's mission, intent, plan and main effort;

    b.   Current and planned changes to:

        (1)   ORBAT,

        (2) C^2 relationships,

        (3)   Tactical tasking and responsibilities of artillery unit and sub-units, and

        (4)   Artillery Reserved Areas (ARA) and Artillery Manoeuvre Areas (AMA).

    c.   Tactical situation including details of enemy artillery and ground forces, and latest intelligence and threat update;

    d.   Intelligence, Surveillance and Target Acquisition and Reconnaissance (ISTAR) Plan, including an understanding of own formation key Named Areas of Interest (NAI), Targeted Areas of Interest (TAI) and associated Decision Points;

    e.   Target engagement priorities;

    f.   Fire Support Coordination Measures;

    g.   Locations of formations, units and sub-units;

    h.   Zones of responsibility of fire units;

    i.   Location and zones of observation of observers;

    j.   Authorisation of observers and/or the allocation of priority of fire;

    k.   Zones of responsibility of weapon locating and combat surveillance equipment;

    l.   States of survey

    m.   Availability of meteorological data;

    n.   Airspace control measures;

o.   AD coverage and weapon control status;

p.   Condition of roads;

q.   General state of equipment and vehicles; and

r.   Artillery CSS plan. (Ammunition holdings, restrictions on ammunition expenditure and dumping policy).

1106. Communications. A FSLO must be able to communicate with the parent formation or unit. Prior to departure the FSLO must confirm the method of communication to be employed and the requirement to deploy with communications equipment and data links, communications instructions and codes. Communications must be tested prior to departure.

1107. Artillery FSLO may be required to deliver documents to another formation or unit. FSLOs must be prepared to brief on the content of any documents to be delivered and should anticipate likely questions. Where appropriate, the following documents may be collected prior to departure:

a.   Artillery Operations Orders and Administrative Orders;

b.   Fire plan orders including target lists and overlays; and

c.   Artillery formation and/or supported formation SOPs, as appropriate.

SECTION III

INTERFACE BETWEEN SYSTEMS

1108. The interoperability of field artillery is based upon the exchange of messages between field artillery units. This exchange of messages can be accomplished in the following ways:

a.   **A digital system to another digital system**. This transfer of information is based upon the messaging formats developed in Common Technical Interface Design Plan (CTIDP).

b.   **A digital system to a voice system**. The transfer of information is done with the assistance of the Artillery FSLO, who takes the digital information and relays it in voice to the unit.

c.   **A voice system to a digital system**. The transfer of information is done with the assistance of the Artillery FSLO, who takes the voice information and

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either enters it into the digital system or sends the information on the appropriate net in voice

d. **A voice system to a voice system**. The transfer of information is done with the assistance of the Artillery FSLO, who takes the information sent on one national radio net and relays it on his own radio net.

e. Physical Transfer by Courier.

1109. This message exchange usually takes place as follows:

a. For conventional tube artillery units, at the battalion FDC.

b. For rocket artillery units at the battalion FDC/CP, however, the aim is to lower this to the battery level.

1110. FSLOs normally communicate with FDC/CPs of their own nationality, who may in turn transmit the message to allied units.

CHAPTER 12

ARTILLERY DEPLOYMENT

SECTION I

GENERAL

1201. The aim of this chapter is to outline artillery deployment. This process is an integral part of fire support planning. The term "real estate" refers to deployment areas or positions.

1202. The deployment plan is an important outcome from fire support planning. It takes the fire support plan, the fire plan and survivability requirements and produces a plan for the movement of the field artillery units. It involves both locations to move to and timings for movement. Several factors influence the deployment plan. These include:

    a.   the tactical situation especially:

        (1)   fire planning - the target areas; weights of fire required, duration of fire and timings.

        (2)   survivability issues based on the enemy threat.

    b.   available real estate; taking into account topography, routes, weather, airspace control measures and other units.

    c.   the characteristics (e.g. firing range and mobility) of the field artillery system(s) in use.

    d.   Combat Service Support**.**

SECTION II

ARTILLERY DEPLOYMENT

1203. Coordinating the deployment of artillery systems is a challenge for formation staffs at all levels. The artillery deployment plan must be developed with the fire support plan – the connections between fire planning, targeting and artillery deployment must be recognised early in the planning process.

1204. There is always great demand for real estate during operations and it is inevitable that artillery deployment areas overlap with those of manoeuvre units' present or planned deployments. During the planning process the artillery staff select Artillery Manoeuvre Areas (AMA) and/or Artillery Reserved Areas (ARA) in conjunction with the manoeuvre G3/S3 staff. The AMAs/ARAs are then issued to the formations/units in the operation order.

1205. **AMA –** The AMA is a grouping of potential gun positions into a deployment area. AMA vary in size[2] depending on the ground, phase of battle, or the number of elements deploying into the area. AMA are not reserved for the artillery, rather, they are areas in which the artillery has priority for deployment. AMA assist the deployment of artillery by establishing a basis for resolving terrain conflicts at the lowest levels.

1206. **ARA** – ARA are areas reserved for the exclusive use of artillery. Batteries using static deployment methods may be allocated an ARA. So may any artillery element of sufficient size to preclude use of that area by another unit, e.g. an ammunition control point (ACP).

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[2] An AMA can be large enough for only a battery, or it can be big enough to accommodate a Regiment/Battalion while leaving room for alternate positions within the AMA.

ANNEX A

<table>
<tr><td colspan="2">RECORD OF NATIONAL RESTRICTIONS
Notes

1.   All Restrictions are annotated in the relevant chapter
2.   Nations not ratified are at page ii.</td></tr>
<tr><td>CHAPTER</td><td>NATION</td></tr>
<tr><td>1</td><td>NONE</td></tr>
<tr><td>2</td><td>US</td></tr>
<tr><td>3</td><td>FR will not use at all.
US
GE</td></tr>
<tr><td>4</td><td>NONE</td></tr>
<tr><td>5</td><td>NONE</td></tr>
<tr><td>6</td><td>NONE</td></tr>
<tr><td>7</td><td>NONE</td></tr>
<tr><td>8</td><td>NONE</td></tr>
<tr><td>9</td><td>CR, GE, GR, HU, PL, PO, SP, TU, US</td></tr>
<tr><td>10</td><td>New chapter to be approved</td></tr>
<tr><td>11</td><td>NONE</td></tr>
<tr><td>12</td><td>NONE</td></tr>
</table>

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RECORD OF SPECIAL CONSIDERATIONS	
Notes	
1. All Restrictions are annotated in the relevant chapter	
2. Nations not ratified are at page ii.	
CHAPTER	**NATION**
1	NONE
2	US
3	FR, TU
4	NONE
5	NONE
6	NONE
7	NONE
8	NONE
9	GE, GR, PO, SP, TU, US
10	New chapter to be approved
11	NONE
12	NONE

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ANNEX C

LIST OF EFFECTIVE PAGES

Serial	Page Numbers	Change Number
1.	i – ix	Original
2.	1-1	Original
3.	1-A-1	Original
4.	2-1 – 2-12	Original
5.	3-1 – 3-12	Original
6.	3-A-1 – 3-A-3	Original
7.	4-1 – 4-2	Original
8.	5-1 – 5-7	Original
9.	5-A-1 – 5-D-2	Original
10.	6-1 – 6-2	Original
11.	6-A-1 – 6-C-2	Original
12.	7-1 – 7-4	Original
13.	8-1 – 8-3	Original
14.	8-A-1 – 8-A-2	Original
15.	9-1	Original
16.	10-1 – 10-22	Original
17.	11-1 – 11-4	Original
18.	12-1 – 12-2	Original
19.	A-1	Original
20.	B-1	Original
21.	C-1	Original
22.		
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