

L58A



TABLE OF CONTENTS: MASTER

M I R, INC.

PATENT NO. 7,056,860

OTHER

PATENTS PENDING

LTHV1.00

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REPORTING

- 01 CASEVAC
- 05 CASREP
- 07 Personnel Report
- 08 IED / UXO Report
- 09 SITREP
- 11 SALUTE Report
- 12 SALUTE Report (Weapons Cache)
- 13 Patrol Report
- 15 SHELL / MORT / BOMBREP
- 17 FIRECAP
- 18 DISREP
- 19 LZ (Landing Zone) Brief
- 21 EPW Tag (sample) & Handling
- 22 CBRN-1 Report
- 23 CSS Rapid Request

FIRE SUPPORT

- 01 Call For Fire (CFF)
- 07 CFF: Elements & Procedures
- 11 Mortar & Artillery Munitions
- 13 Quick Fire Support Plan
- 15 Angle & Range Estimation
- 17 Danger Close Risk Estimate
- 19 CAS Controller Guidance & Check-In
- 20 CAS 6 - Line Brief
- 21 CAS 9 - Line Brief
- 23 AC130 Gunship CFF

COMMON LOG & ENG CONSID

- 01 Vehicle Information
 - a. Fuel
 - b. Range, Load & Fording
 - c. Dimensions & Weights
 - d. Troop Capacity & External Lift
 - 02 e. Trailers & Waterbull
- MISCELLANEOUS
- a. Common Item Weights
 - b. Concertina Wire & Engineer Tape
 - c. MEP - 831 (TQG)
 - d. Distance Conversion
- HESCO
- Lithium Batteries
- 03 DODIC(s)

WEAPONS INFORMATION

- 01 Weapon Capabilities
- 03 Common Weapon Threat Characteristics

COMMON MILITARY SYMBOLS

- 01 Military Symbology
 - a. Basic Military Symbols
- 03 b. Control Measures
 - c. Fire Support Coordination Measures
- 05 Fire Plan Sketch
- 07 Range Card
- 08 Standard Range Card

PATROL COORDINATION

- 01 Patrol Coordination Checklist
- 03 Patrol Coordination Notes
- 08 Route Overlay Example
- 09 Patrol Debrief Example

COMBAT ORDER

- 01 Combat Order Flowchart
- 02 Planning Process Flowchart
- 03 Five Paragraph Order
 - * Orientation
- 05 I. Situation
- 08 II. Mission
- 09 III. Execution
- 18 IV. Administration & Logistics
- 21 V. Command & Signal

PRE-COMBAT CHECKS & INSP

- 01 Vehicle Checks
- 02 PCC: Leader Checklist
- 03 PCC: Individual Checklist
- 04 Pre-Combat Inspection
- 05 PCC: Crew Fueled Weapons
- 06 Supporting Unit Check-In Sheet
- Supported Unit Checklist

COMMUNICATIONS

- 01 AN / PRC - 152
- 03 AN / PRC - 148
- 05 AN / PRC - 119F

ACCOUNTABILITY

- 01 Personnel
 - Weapons
 - Ammunition
- 02 Pyrotechnics
- Demolitions Equipment
- Optics
- Special Equipment
- Miscellaneous

CASEVAC REQUEST / MEDEVAC INFO

1-00

FROM FAC TO DASC / DASC(A) / TACC(A) HIGHER

VHF (S/C/PT) (PRI): _____ (ALT): _____

UHF (PRI): _____ (ALT): _____

SAT PHONE: _____

CASEVAC REQUEST / NATO 10-LINE

NOTE: Report the first three lines of the report to begin the process; follow-up with the remainder.

LINE 1

GRID COORD OF PICK-UP SITE: _____

LINE 2

RADIO FREQ: _____ CALL SIGN: _____

LINE 3

NUMBER OF PATIENTS BY PRECEDENCE:

_____ **A** URGENT _____ **B** URGENT / SURGICAL_____ **C** PRIORITY _____ **D** ROUTINE _____ **E** CONVENIENCE

LINE 4

SPECIAL EQUIPMENT REQUIRED:

 A NONE **B** HOIST **C** EXTRACT EQUIP **D** VENTILATOR

LINE 5

NUMBER OF PATIENTS BY TYPE:

_____ **L** LITTER _____ **A** AMBULATORY

LINE 6

SECURITY AT PICK-UP SITE:

 N NO ENEMY TROOPS **E** ENEMY TROOPS IN AREA
(CAUTION RECOMMENDED) **P** POSSIBLE ENEMY TROOPS **X** ENEMY TROOPS IN AREA
(ARMED ESCORT RECOMMENDED)

LINE 7 METHOD OF MARKING PICK-UP SITE:

A PANELS B PYRO C SMOKE D NONE E OTHER

LINE 8 PATIENT NATIONALITY & STATUS:

A US MILITARY B US CITIZEN C NON US MILITARY
 D NON US CITIZEN E ENEMY PRISONER OF WAR (EPW)

LINE 9 CBRN CONTAMINATION:

A RADIOLOGICAL B BIOLOGICAL C CHEMICAL D NONE

LINE 10 PATIENT INFORMATION:

FIRST INITIAL, MIDDLE INITIAL, LAST NAME, LAST 4 SSN, BLOOD TYPE

CASEVAC / MEDEVAC CONSIDERATIONS

MEDEVAC: medical capability on board (e.g. a corpsman)

CASEVAC: TRANSPORTATION ONLY; no medical capability

- Determine the location of the Platoon CCP and the Company CCP
- Determine location of Battalion Ambulance Exchange Point
- Designate MEDEVAC vehicle and ensure that it is empty
- Walk through both Ground or Air or combination of both
- Equipment considerations
 - Pole-less litters
 - Smoke
 - IR Strobe
 - Air Panel
- Additional considerations
 - Who is your MEDEVAC vehicle?
 - Who is security escort for med vehicle?
 - Will there be a vehicle exchange at the CCP? Escort responsibilities at CCP to higher echelon?
 - Ground vs. Air
 - Time
 - Distance

TRIAGE**URGENT**

A severe injury; threatening to life, limb, or eyesight – casualties marked as urgent must be treated first at the scene and transported immediately. Such injuries / problems include the following:

- Airway and breathing difficulties
- Gunshot wounds
- Spinal or pelvic fractures
- Cardiac arrest
- Uncontrolled or suspected severe interior bleeding
- Open chest or abdominal wounds
- Severe head injuries with evidence of brain damage, no matter how slight
- Heat Stroke

PRIORITY

An injury that requires immediate medical attention, but is not threatening to life, limb, or eyesight – for casualties marked as priority, transportation and hospital treatment can be delayed slightly. The following are typical problems or injuries:

- Burns without complications
- Major or multiple fractures
- Back injuries without spinal damage
- Heat/cold injuries – not counting heat stroke

ROUTINE

An injury that is not threatening to life, limb, or eyesight. Routine casualties are transported or treated last. Examples of routine injuries are:

- Injuries of a minor nature, i.e. sprains, small fractures, minor lacerations, etc.
- Obvious mortal wounds where death appears reasonably certain
- Obviously dead

LIFE SAVING STEPS

STEP 1: STOP THE BLEEDING STEP 3: PROTECT THE WOUND
STEP 2: START THE BREATHING STEP 4: TREAT FOR SHOCK

NINE DIAGNOSTIC SIGNS

- | | | |
|------------------|---------------|--------------------------|
| • PULSE | • TEMPERATURE | • LEVEL OF CONSCIOUSNESS |
| • RESPIRATION | • SKIN COLOR | • ABILITY TO MOVE |
| • BLOOD PRESSURE | • PUPILS | • REACTION TO PAIN |

TOURNIQUET APPLICATION

- STEP 1: Select a place between the wound and the heart, approximately 2 inches from the wound.
- STEP 2: Place a pad, made from a dressing or other suitable material, over the main artery supplying blood to the limb.
- STEP 3: Apply a constricting band over the pad, knot it, and insert a device to tighten the tourniquet. Ropes, pieces of wire or other thin materials should not be used because they could cut into the tissues of the limb.
- STEP 4: Tighten the tourniquet just enough to control the bleeding. If it is unnecessarily tight, it will cause excessive damage to the limb.
- STEP 5: Mark the casualty's forehead with "T" and the time and date the tourniquet was applied *for each tourniquet applied*.

SYMPTOMS OF SHOCK

- Sweaty but cool skin
- Pale skin
- Restlessness, nervousness
- Thirst
- Loss of blood (caused by internal or external bleeding)
- Confusion or loss of awareness
- Faster than normal breathing rate
- Blotchy or bluish skin (especially around the mouth and lips)
- Nausea & vomiting

TREATMENT FOR SHOCK

- STEP 1: Move the casualty to cover if the situation requires and permits.
- STEP 2: Position the casualty on his or her back. Do not move the casualty on his or her limbs if suspected fractures have not been splinted.
- Note:** Some casualties who may be in shock after suffering a heart attack, chest wound, or breathing distress may breath easier in a sitting position. If so, allow them to sit upright but monitor their condition carefully.
- STEP 3: Elevate the casualty's feet higher than the level of the heart. Use a stable object (a box, field pack, or rolled up clothing), so the feet will not slip off. Remember to splint suspected fractures before elevating the feet.
- STEP 4: Loosen clothing at the neck, waist or wherever it may be binding.
- STEP 5: Prevent chilling or overheating. Place a blanket or like item over and under the victim to prevent chilling.
- STEP 6: Calm the casualty (very important).
- STEP 7: During the treatment or prevention of shock, do not give the casualty any food or drink. If the casualty is unconscious, turn his or her head to the side so that, in case he or she vomits, the victim will not choke on it.

CASUALTY REPORT

LINE 1 CASUALTY'S PERSONAL INFORMATION:

L58A

GRADE: _____ FIRST & MI: _____

LAST: _____

SSN: _____ MOS: _____

COMPONENT: _____ SEX: M FBLOOD TYPE: A POS B POS AB POS O POS A NEG B NEG AB NEG O NEG

LINE 2 TYPE, STATUS & CATEGORY:

4

TYPE: HOSTILE NON-HOSTILESTATUS: DECEASED INJURY ILL MISSING UNRECOVERABLECATEGORY: NON-BATTLE DEATH (NBD) NON-BATTLE INJURY (NBI) KILLED IN ACTION (KIA) WOUNDED IN ACTION (WIA) MISSING IN ACTION (MIA) CAPTURED (POW)

LINE 3

DIAGNOSIS / CAUSE OF DEATH: _____

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LINE 4 **CONDITION:**

- GOOD FAIR SERIOUS
- VERY SERIOUS CRITICAL GRAVE

LINE 5

DATE TIME GROUP (DTG): _____

LOCATION OF OCCURRENCE: _____

LINE 6

CIRCUMSTANCES: _____

LINE 7

UNIT: _____

POINT OF CONTACT: _____

LINE 8

CURRENT LOCATION OF CASUALTY: _____

POINT OF CONTACT: _____

LINE 9

REMARKS: _____

PERSONNEL REPORT

100

LINE 1

UNIT: _____

LINE 2 MARINE OFFICER(S):

START	GAIN	LOSS	KIA	WIA	MIA	TOTAL

LINE 3 MARINE ENLISTED:

START	GAIN	LOSS	KIA	WIA	MIA	TOTAL

LINE 4 NAVY OFFICER(S):

START	GAIN	LOSS	KIA	WIA	MIA	TOTAL

LINE 5 NAVY ENLISTED:

START	GAIN	LOSS	KIA	WIA	MIA	TOTAL

LINE 6 OTHER PERSONNEL:

START	GAIN	LOSS	KIA	WIA	MIA	TOTAL

START + GAIN - LOSS - KIA - WIA - MIA = TOTAL

IED/UXO REPORT

1.00

LINE 1

DATE TIME GROUP ITEM DISCOVERED: _____

LINE 2

UNIT REPORTING ACTIVITY: _____

LOCATION OF IED/UXO (10 DIGIT GRID): _____

LINE 3 CONTACT METHOD:

RADIO FREQ: _____ POC: _____

CALL SIGN: _____ PHONE #: _____

LINE 4

MUNITIONS TYPE & NUMBER: _____

LINE 5

CBRN CONTAINMENT: _____

LINE 6

RESOURCES THREATENED: _____

I.E. NEAR PLAYGROUND; ON KEY ROUTE

LINE 7

IMPACT ON MISSION: _____

LINE 8

PROTECTIVE MEASURES: _____

HOW IT IS MARKED & SECURED

LINE 9

RECOMMENDED PRIORITY: _____

IMMEDIATE, INDIRECT, MINOR, NO THREAT

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SITREP

100

SITUATION REPORT

NOTE: 1. *Begin with the subject line of the message, the serial number and / or code name, and map sheet details as required.*

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(RECEIVER)

THIS IS

*(SENDER)***SITREP**

*(serial number followed by code name and map sheet details as required)***LINE 1 DTG:** _____**LINE 2 FRIENDLY POSITION:** _____*(encrypted)***LINE 3 ACTIVITIES CONDUCTED:**

*(since last situation report)***LINE 4 ACTIONS PLANNED:**

(for the next 12-hour period)

REPORTING 09

2009



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PATENTS PENDING

6

OTHER

PATENT No. 7,056,860

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LINE 5 LOGISTICAL REQUIREMENTS:

(food, ammunition, pyrotechnics, water, etc.)

LINE 6 PERSONNEL CASUALTIES:

(since last casualty report)

LINE 7 REMARKS:

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PATENT No. 7,056,860

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SALUTE REPORT

1.00

SALUTE is used to report enemy presence and activity - NOT CONTACT.

LINE A

SIZE: _____

LINE B

ACTIVITY: _____

LINE C

LOCATION: _____

(EIGHT-DIGIT GRID COORDINATE OF ENEMY FORCES)

LINE D

UNIT: _____

(GIVE A DESCRIPTION OF IDENTIFYING MARKS ON PERSONNEL, VEHICLES, EQUIP.)

LINE E

TIME: _____

(TIME OF ENEMY ACTIVITY - NOT TIME THE REPORT IS SENT)

LINE F

EQUIPMENT: _____

(IDENTIFY OR DESCRIBE ALL WEAPONS OR EQUIPMENT IN VIEW)

LINE G

REMARKS: _____

SALUTE REPORT for WEAPONS CACHE

1.00

LINE A (HOW MANY WEAPONS / AMMO BY TYPE LOCATED AT THE CACHE)

SIZE: _____

LINE B

ACTIVITY: _____
(1: MOVEMENT IN AO CONNECTED TO THE CACHE SITE)

(2: DESCRIPTION OF ITEMS IN CACHE)

LINE C

LOCATION: _____
(EIGHT-DIGIT GRID COORDINATE OF WEAPONS CACHE)

LINE D

UNIT: _____

LINE E

TIME: _____
(TIME)

LINE F

EQUIPMENT: _____

LINE G

REMARKS: _____

(ACTION TAKEN BY UNIT)

PATROL REPORT

1.00

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PATENTS PENDING

8

OTHER

PATENT No. 7,056,860

M I R, INC.

LINE 1

UNIT: _____

LINE 2

DATE: _____

LINE 3

MAP SHEET: _____

LINE 4

SCALE: _____

LINE 5

SIZE & COMPOSITION OF PATROL: _____

LINE 6

TASKS: _____

LINE 7

TOD: _____

LINE 8

TOR: _____

LINE 9

ROUTES: _____

LINE 10

TERRAIN: _____

LINE 11

ENEMY: _____

LINE 12

MAP CORRECTIONS: _____

LINE 13

MISC INFO: _____

LINE 14

CONDITION OF PATROL: _____

LINE 15

CONCLUSION & RECOMMENDATIONS: _____

SHELLREP | MORTREP | BOMBREP

1-00

STANDARD SHELLING / MORTARING / BOMBING REPORT: STATE WHICH

NOTE: 1. Begin with the subject line of the message (SHELLREP or MORTREP or BOMBREP), the serial number and / or code name (coordinated before the insertion), and map sheet details as required.

L58A

(RECEIVER)

THIS IS

*(SENDER)***(STATE WHICH)**

*(serial number followed by code name and map sheet details as required)***ALPHA** DATE TIME GROUP:

*(DTG - HRS:MIN / MONTH, DAY, YEAR / UTC +)***BRAVO** UNIT OF ORIGIN:

*(current call sign, address & group / code name)***CHARLIE** POSITION OF OBSERVER:

*(grid reference preferred)***DELTA** BEARING OF FLASH / SOUND:

A bearing or azimuth (as designated in line ALPHA) of flash, sound of impact, groove of impact, or original flight of missiles or rockets is provided. This line is omitted for aircraft bombing.

ECHO TIME FROM:

*(time shelling / mortaring / bombing began)***FOXTROT** TIME TO:

(time shelling / mortaring / bombing ended)

GOLF AREA SHELLED / MORTARED / BOMBED:

This may be transmitted either as:

1. **Polar Plot.** *This includes the bearing / azimuth and distance/range of impact from the observer. (This information should be encoded to prevent the observer from being bracketed as a result of the enemy getting a back azimuth and range to the observer. This is **NOT** the preferred technique to locate the impact of the round).*
 2. **Grid Reference.** *This information should not be encoded because the enemy already knows where he is shooting and this information will only assist the enemy in breaking the encryption. (This **IS** the preferred tech-nique for transmitting this information.)*
-

HOTEL NATURE OF FIRE: _____

The purpose for which the fire is being used is reported: registration, bombardment, harassment, or son (may be omitted for aircraft).

JULIET CALIBER / SIZE OF ORDNANCE BEING FIRED:

The size of the weapon being fired or the size of the bomb being dropped is reported (if a determination can be made).

KILO TIME FROM FLASH TO BANG: _____

The time from observing the flash to hearing the sound of the explosion of the impact is reported (recorded in seconds).

LIMA BATTLE DAMAGE ASSESSMENT: _____**MIKE REMARKS:** _____

FIRE CAPABILITIES REPORT (FIRECAP)

1-00

The FIRECAP is used to report the firing status of an indirect fire agency. The report is made when a unit occupies a new firing position and is ready to fire or when a change occurs in the number of weapons available.

ADDRESSEE _____

ORIGINATOR _____

MARK & TRANSMIT THE PRECEDENCE OF THIS MESSAGE:

FLASH

IMMEDIATE

PRIORITY

ROUTINE

MARK & TRANSMIT THE SECURITY CLASSIFICATION OF THIS MESSAGE:

TOP SECRET

SECRET

CONF

UNCLASS

ALPHA

UNIT: _____

BRAVO

LOCATION: _____

CHARLIE

AZIMUTH OF FIRE: _____

DELTA

NUMBER OF WEAPONS: _____

ECHO

DTG (POSITION ESTABLISHED): _____

FOXTROT

REMARKS: _____

DTG (OF MESSAGE): _____

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PATENTS PENDING

10

OTHER

PATENT No. 7,056,860

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DISPLACEMENT REPORT (DISREP)

1-00

The DISREP is used to report the displacement of an indirect fire agency. The DISREP is submitted when the unit can no longer fire from its present position due to displacement.

ADDRESSEE

ORIGINATOR

MARK & TRANSMIT THE PRECEDENCE OF THIS MESSAGE: FLASH IMMEDIATE PRIORITY ROUTINE**MARK & TRANSMIT THE SECURITY CLASSIFICATION OF THIS MESSAGE:** TOP SECRET SECRET CONF UNCLASS

ALPHA

UNIT:

BRAVO

DTG (DISPLACEMENT):

CHARLIE

DESTINATION:

DELTA

NUMBER OF WEAPONS:

ECHO

REMARKS:

DTG (OF MESSAGE):

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LANDING ZONE BRIEF

1-01

NOTE: Lines 2, 5, 8, 9 & 10 are key lines to be passed in cases where an ABBREVIATED or EMERGENCY LZ Brief is necessary.

LINE 1

L58A

MISSION NUMBER: _____

LINE 2

LOCATION: _____

LINE 3

CALL SIGN: _____

LINE 4

FREQUENCY: _____

LINE 5

LZ MARKING: _____

LINE 6

11

WIND DIRECTION & VELOCITY: _____ / _____

LINE 7

ELEVATION / SIZE / SHAPE: _____ / _____ / _____

LINE 8

OBSTACLES: _____

LINE 9

FRIENDLY POSITIONS (DIR / DIST): _____ / _____

LINE 10

ENEMY POSITIONS (DIR / DIST): _____ / _____

LINE 11

LAST FIRE RECEIVED (TIME / TYPE): _____ / _____

LINE 12

DIRECTION OF FIRE & DISTANCE: _____ / _____

LINE 13

CLEARANCE TO FIRE (DIR / DIST): _____ / _____

LINE 14

APPROACH / RETIREMENT (REC): _____ / _____

LINE 15

PERSONNEL / EQUIPMENT: _____

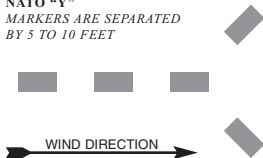
LINE 16

OTHER: _____

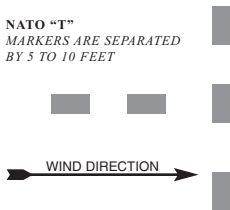
LANDING ZONE CONSIDERATIONS & MARKING

TYPE	LZ SIZE (L x W)		OTHER CONSIDERATIONS
	SINGLE	SECTION (2 A/C)	
CH - 53	200' x 300'	300' x 400'	LARGE ROTOR WASH
CH - 46	100' x 100'	200' x 200'	CAPABLE OF SEMI-ROUGH TERR LANDING
UH - 60	100' x 100'	200' x 200'	UNARMED
UH - 1N	75' x 100'	150' x 150'	VARIETY OF MSN / ORD
AH - 1W	75' x 100'	150' x 150'	NARROW SKIDS REQ FLAT, SMOOTH SURF

NATO "Y"
MARKERS ARE SEPARATED
BY 5 TO 10 FEET



NATO "T"
MARKERS ARE SEPARATED
BY 5 TO 10 FEET



EPW TAG (SAMPLE)

100

NOTE: IN ACCORDANCE WITH THE "FIVE S's & T" (SEARCH, SILENCE, SEGREGATE, SAFE GUARD, SPEED, TAG) THE INFORMATION BELOW MUST BE ON EACH EPW (CAPTIVE) TAG & DOCUMENT TAG (LEFT IS CARD FRONT, RIGHT IS CARD BACK).

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2009
C

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PATENTS PENDING

12

OTHER

PATENT No. 7,056,860

M I R, INC.

CAPTIVE TAG

TAG NUMBER: _____

DATE & TIME OF CAPTURE: _____

PLACE OF CAPTURE (GRID): _____

CIRCUMSTANCE OF CAPTURE: _____

WEAPON(S): YES NO

WEAPON(S) TYPE: _____

DOCUMENT(S): YES NO

(If yes, complete lower half of tag)

CAPTURING UNIT: _____

DO NOT REMOVE TAG FROM CAPTIVE

INSTRUCTIONS (CAPTIVE TAG)

1. Complete the upper half of the tag for each captive.
2. If the captive has a document, circle yes.
3. Securely affix the tag to the captive.

ADDITIONAL INFO: _____

INTG SG: _____

DO NOT REMOVE TAG FROM CAPTIVE

DOCUMENT TAG

TAG NUMBER: _____

DATE & TIME OF CAPTURE: _____

PLACE OF CAPTURE (GRID): _____

CIRCUMSTANCE OF CAPTURE: _____

DOCUMENTS FOUND ON:

CAPTIVE OTHER (DESCRIBE)

CAPTURING UNIT: _____

DO NOT REMOVE TAG FROM DOCUMENT

INSTRUCTIONS (DOCUMENT TAG)

1. Complete the lower half of the tag for each document or group of documents captured from one individual or location.
2. Wrap the document to prevent loss or damage.
3. Securely affix the tag to the document.
4. If captured from an individual, evacuate with his guard.
5. If not captured from an individual, evacuate through Battalion S-2.

ADDITIONAL INFO: _____

DO NOT REMOVE TAG FROM DOCUMENT

EPW HANDLING CONSIDERATIONS

(1) Designate Collection Points; (2) Identify mode(s) of transportation; (3) Escorts / Security Personnel; (4) EPW / Detainee paperwork; (5) Statements by captors (minimum of 2); (6) HET / Translator support; (7) Female searcher(s); (8) Equipment Considerations (e.g. Blind Fold, Flexcuffs / Zip Ties, Food, water & blankets, Duck tape for marking EPQ personal belongings, Concertina wire, Digital Camera & thumb drive)

CBRN-1 REPORT

1.00

OBSERVER REPORT TO COC: CHEMICAL or BIOLOGICAL

ALFA

Strike Serial Number (OPTIONAL)

BRAVO

Loc of obs & dir of atk in degrees / mils (MANDATORY)

DELTA

DTG of atk or det & atk end (MANDATORY)

FOXTROT

Loc of atk or event (OPTIONAL)

GOLF

Delivery & quantity info (MANDATORY)

INDIA

Release info on BIO / CHEM agent atk or ROTA event (MANDATORY)

TANGO

Terrain / topography & vegetation description (MANDATORY)

YANKEE

Representative downwind direction & downwind speed (OPTIONAL)

ZULU

Actual weather conditions (OPTIONAL)

GENTEXT

General Text (OPTIONAL)

REPORTING 22

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PATENT No. 7,056,860

OTHER

PATENTS PENDING

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CSS RAPID REQUEST

1.00

NOTE: Lines A, B, C, T, U, X and Z must be completed.

LINE A**REQUESTER'S CALL SIGN / RUC:** _____**LINE B****LOCATION OF UNIT:** _____**LINE C****PRIORITY OF REQUEST:** ROUTINE URGENT IMMEDIATE**LINE D****SUPPORT REQUIRED:** _____**LINE E****TYPE & AMOUNT CLASS I:** _____
*SUBSISTENCE***LINE F****TYPE & AMOUNT CLASS II:** _____
*INDIVIDUAL EQUIPMENT***LINE G****TYPE & AMOUNT CLASS III:** _____
*POL***LINE H****TYPE & AMOUNT CLASS IV:** _____
*CONSTRUCTION MATERIAL***LINE I****TYPE & AMOUNT CLASS V:** _____
*AMMUNITION BY DODIC***LINE J****TYPE & AMOUNT CLASS VIII:** _____
*MEDICAL SUPPLIES***LINE K****TYPE & AMOUNT CLASS IX:** _____
*REPAIR PARTS***LINE L** (*ERO should be filled out*)**EQUIP TO BE REPAIRED & PARTS NEEDED:** _____

LINE M (ERO should be filled out)

EQUIP TO BE EVAC & REPAIR PARTS: _____

LINE N

ENGINEER SUPPORT REQUIRED: _____

LINE O

MATERIAL HANDLING SUPPORT REQUIRED: _____

LINE P

TYPE OF CARGO TO BE MOVED: _____

LINE Q

POUNDS OF CARGO TO BE MOVED: _____

LINE R

CUBIC FEET OF CARGO TO BE TRANSPORTED: _____

LINE S

NUMBER OF PAX TO BE TRANSPORTED: _____

LINE T

DATE/TIME OF PICK-UP & LOCATION: _____

LINE U

DESTINATION OF CARGO/PAX: _____

LINE V

HELO/ AIR DELIVERY (Y/N): _____

LINE W

LZ MARKING: _____

LINE X

CONTACT INSTRUCTIONS: _____

LINE Y

CLARIFYING INSTRUCTIONS: _____

LINE Z

POINT OF CONTACT: _____

CALL FOR FIRE (CFF)

201

NOTE: OMIT DATA NOT REQUIRED; DO NOT TRANSMIT LINE NUMBERS.

A F | F F E

ADJUST FIRE | FIRE FOR EFFECT

TRANSMISSION 1

- A** _____ **THIS IS** _____
(YOU; FIRE SUPPORT UNIT CALL SIGN) (ME; OBSERVER CALL SIGN)
- B** AF FFE
- C** (POLAR) (SHIFT) (omit if grid)
- D** (TGT #) _____ (omit if none) **OVER**

STANDBY FOR FDC READBACK

TRANSMISSION 2

- GRID** _____ **OVER**
(8-digit grid preferred; direction is given before adjustment)
- 14** **(POLAR)** _____ **OVER**
(direction | distance | up / down | VA + / -)
- (SHIFT)** _____ **OVER**
(direction | left / right | + / - | up / down)

STANDBY FOR FDC READBACK

TRANSMISSION 3

(TARGET DESCRIPTION (required): type, size, activity, degree of protection, shape)

*(METHOD OF ENGAGEMENT (optional): AREA FIRE is DEFAULT | danger close | sheaf (circular, linear, rectangular) | mark | high / low angle | ammo: High Explosive / fuze: Quick is DEFAULT | volume of fire)***OVER**

(METHOD OF FIRE & CONTROL (optional): when READY is DEFAULT | at my command | cannot observe | TOT | coordinated / continuous illumination | CAS TOT)

STANDBY FOR FDC READBACK

FIRE SUPPORT 01

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C

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PATENTS PENDING

14

OTHER

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M I R, INC.

M T O

MESSAGE TO OBSERVER

MTO _____
(unit to fire) (changes to CFF)

_____ ROUNDS _____
(# of rounds in effect) (target #)

_____ (P_Er) _____ (Angle T) _____ (PRF Code)

_____ (TOF) _____ (other) **OUT**

A D J U S T M E N T S

NOTE: direction is sent before, or with, the first subsequent correction

DIRECTION _____ **OVER**
(if grid mission; specify degrees, MILS are default)

USE THE IMPACT PLOTTING & ADJUSTMENTS TEMPLATE

M I S S I O N C O M P L E T I O N

END OF MISSION | REFINEMENTS, RECORD AS TARGET, END OF MISSION, & SURVEILLANCE (RREMS)

_____ **OVER**

Note: for End of Mission, report BDA (Battle Damage Assessment) & Target Activity.

Note: RREMS transmission is an OPTIONAL replacement for End of Mission.

IMPACT PLOTTING & ADJUSTMENTS

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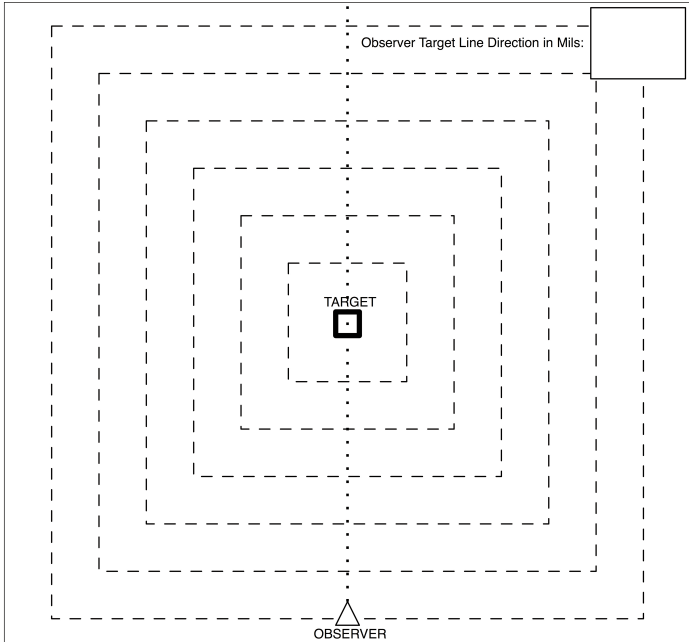
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15

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PATENT No. 7,056,860

M I R, INC.



SPOTTINGS			CORRECTIONS			OTD	OTF
RNG	DEV	HOB	L/R	+/-	U/D	RND#	NOTES

METHOD FOR ADJUSTING FIRES

CALCULATION

1. OT DISTANCE

- a. If an OT distance is greater than 1,000 meters, express the distance to the nearest thousand meters; if an OT distance is less than 1,000 meters, express the distance to the nearest hundred meters
- b. Ex: *OT distance is 1,500 meters, which is expressed as 2,000 meters*

2. OT FACTOR

- a. The OT factor is the expressed distance from the forward observer to the target in meters divided by 1,000.
- b. Ex: *OT factor = Expressed OT distance / 1000*

3. LATERAL CORRECTION & DEVIATION SPOTTING

- a. The left (L) or right (R) deviation correction is determined by multiplying, in mils, the deviation between impact and the target (the deviation spotting) by the OT factor. Deviation corrections are expressed to the nearest 10 meters
- b. Remember to adjust the opposite the deviation spot: if the round is right (deviation spot right) move the round impact left, and vice versa.
- c. Ex: *Left or right deviation correction in meters = Deviation spotting (to nearest 5 mils) x OT factor*
 ◇ *NOTE: deviation correction less than 30 meters is considered minor and is ignored during the mission*

EXAMPLES



a. Example 1:

- ◇ The OT distance is 1,500 meters, which is expressed as 2,000 meters, so the OT factor = 2 (OT distance of 2000 divided by 1000); deviation spotting is L45 mils
- ◇ The deviation spotting = 45 (mils) x 2 (OT factor) = 90 meters; lateral correction is R90

b. Example 2:

- ◇ The OT distance is 650 meters, which is expressed as 600 meters, so the OT Factor = 0.6 (OT distance of 600 divided by 1000); deviation spotting is R60 mils.
- ◇ The deviation spotting = 60 (mils) x .6 (OT factor) = 36 meters, which expresses to 40 meters; lateral correction is L40

WORKSHEET

OT DISTANCE		1000	=	OT FACTOR
DEV SPOTTING		OT FACTOR	=	LATERAL CORRECTION

S U P P R E S S I O N**TRANSMISSION 1**

_____ **THIS IS** _____
 (*YOU; FIRE SUPPORT UNIT CALL SIGN*) (*ME; OBSERVER CALL SIGN*)

L58A

SUPPRESS (TGT #) _____ **OVER**

S T A N D B Y F O R F D C R E A D B A C K**TRANSMISSION 2**

I AUTHENTICATE _____ **OUT**

I M M E D I A T E S U P P R E S S I O N**TRANSMISSION 1**

_____ **THIS IS** _____
 (*YOU; FIRE SUPPORT UNIT CALL SIGN*) (*ME; OBSERVER CALL SIGN*)

16

IMMEDIATE SUPPRESSION, GRID _____

AUTHENTICATION IS _____ **OVER**

I M M E D I A T E S M O K E**TRANSMISSION 1**

_____ **THIS IS** _____
 (*YOU; FIRE SUPPORT UNIT CALL SIGN*) (*ME; OBSERVER CALL SIGN*)

IMMEDIATE SMOKE, GRID _____ **OVER**

CONTINUOUS ILLUMINATION

ADJUST FIRE

TRANSMISSION 1

A _____ **THIS IS** _____
(YOU; FIRE SUPPORT UNIT CALL SIGN) (ME; OBSERVER CALL SIGN)

B **AF**

C **(POLAR)** **(SHIFT)** (omit if grid) **OVER**

STANDBY FOR FDC READBACK

TRANSMISSION 2

GRID _____ **OVER**
(8-digit grid preferred; direction is given before adjustment)

(POLAR) _____ **OVER**
(direction | distance | up / down | VA + / -)

(SHIFT) _____ **OVER**
(direction | left / right | + / - | up / down)

STANDBY FOR FDC READBACK

TRANSMISSION 3

(TARGET DESCRIPTION (required): type, size, activity, degree of protection, shape)

ILLUMINATION _____
(METHOD OF ENGAGEMENT (2 guns, range and / or lateral spread)

(METHOD OF FIRE & CONTROL (optional): when READY is DEFAULT | at my command | cannot observe | TOT | coordinated / continuous illumination | CAS TOT) **OVER**

- No MTO is sent for ILLUM mission (Unit SOP dependant)
- Adjust Illumination until target area is best illuminated, then send: **“CONTINUOUS ILLUMINATION”** in subsequent correction
- Illum is constant, FDC controls timing
- Send HE missions independently
- To end mission, send “Cease Loading” then “EOM”

CALL FOR FIRE ELEMENTS

1. OBSERVER IDENTIFICATION

Example: *You* (fire support unit call sign) *this is me* (observer call sign)

2. WARNING ORDER

- Type of Mission: *Adjust Fire; Fire for Effect; Suppression; Immediate Suppression; Suppression of Enemy Air Defense*
- Size of element to fire (optional)
- Method of Target Location: *Grid (standard / default if method is not specified); Polar; Shift*

3. TARGET LOCATION

- Grid is used for a 6-digit or 8-digit grid coordinate (8-digit grid is preferred)
- Polar is used for observer to target direction, distance, and up / down vertical shift (if > 30m)
- Shift is used for observer to target direction, left / right lateral shift, add (+) / drop (-) range shift, and up / down vertical shift (if > 30m)

4. TARGET DESCRIPTION

- Provide as many of the following as possible: *Type; Size; Activity; Degree of Protection; Shape*

5. METHOD OF ENGAGEMENT (optional)

- Type of Adjustment: *Area Fire (default); Precision Fire (registration or destruction missions)*
- Danger Close (within 600 meters of friendly forces)
- Mark
- Trajectory: *High Angle (default for mortar); Low Angle (default for artillery)*
- Ammunition (high explosive projectile / fuze quick will be used as the default if no other ammunition is specified): *High Explosive (HE); Antipersonnel (APERS); Improved Conventional Munitions (ICM); Illumination (ILLUM); Tactical Riot Control Agent (CS); Smoke (SMK); White Phosphorus (WP); Cannon Launched Guided Projectile (CLGP) (Copperhead)*
Fuzes: *Quick (Q); Delay (D); Variable Time (VT); Mechanical Time (Ti); Multi-Option Fuze (MOF); Concrete Piercing (CP); Point Detonating (PD); Base Detonating (BD) (naval gunfire)*
- Distribution: *Parallel (default for mortars); Circular (default for artillery); Open; Converged; Special*

6. METHOD OF FIRE & CONTROL (optional)

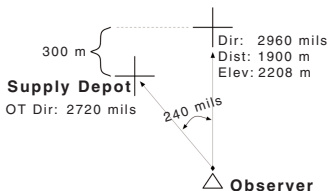
- Method of Fire: *One Gun in Adjust (default); Platoon; Section; Left or Right by Piece*
- Method of Control (artillery will be fired when it is ready [FIRE WHEN READY] if no other method of control is specified): *At My Command; Cannot Observe; Time On Target (TOT); Close Air Support (CAS) TOT; Coordinated Illumination; Continuous Illumination*

1. CALL FOR FIRE EXAMPLES

- a. **Grid:** "Echo 3 Delta, this is Lima 5 Mike, Fire For Effect, OVER; Grid 743 221 OVER; Four trucks in the open, HE / VT OVER"
 ◊ Note: direction must be sent prior to the first correction
- b. **Polar:** "Echo 3 Delta this is Lima 5 Mike, Adjust Fire, Polar, OVER; Direction 4130, Distance 1200, Down 50, OVER; Infantry squad in fighting holes, HE / Ti, OVER"
 ◊ Note: fire direction center (FDC) must have forward observer (FO) location to use polar mission
- c. **Shift:** "Echo 3 Delta this is Lima 5 Mike, Adjust Fire, Shift AB1013, OVER; Direction 2720, Left 450, Drop 300, Up 75, OVER; Supply depot under light cover, OVER"
 ◊ Note: both FDC and FO must have known point location

2. TARGET LOCATION METHODS

- a. **Grid:** determine 6-digit grid coordinate of the target (8-digit for precision fire)
- b. **Polar:**
 - ◊ Direction: determine the observer to target (OT) direction (to the nearest 10 mils)
 - ◊ Distance: determine the OT distance (to the nearest 100 meters)
 - ◊ Vertical Shift: determine the up / down OT vertical difference in altitude and send if the difference is 35 meters or greater (to the nearest 5 meters)
- c. **Shift:**
 - ◊ Direction: determine OT direction (to the nearest 10 mils)
 - ◊ Deviation Shift: determine the left or right lateral shift (W) from the known point to the target (express to the nearest 10 meters) using the mil relation formula:
WERM (Width Equals Range (x) Mils)
 - i. **W = Width of the deviation shift (your SF or Shift Factor)**
 - ii. **R = Range (distance) to the known point divided by 1,000 (expressed to the nearest 10th)**
 - iii. **M = Measured angle in mils between the known point & the target**
 - ◊ Range Shift: determine the add (+) / drop (-) range (distance) shift from the known point to the target to the nearest 100 meters
 - ◊ Vertical Shift: determine the up / down vertical difference in altitude between the known point and the target and send if the difference is 35 meters or greater (to the nearest 5 meters)



Direction (Apply RALS): 2720 mils

$$2960 \text{ Mils} - 240 \text{ Mils} = 2720 \text{ mils}$$

Deviation Shift: Left 450

$$R = 1900 \text{ m} / 1000 = 1.9$$

$$M = 240$$

$$W = 1.9 \times 240 = 456 = 450$$

Range Shift: Drop 300

Vertical Shift: Up 75

3. IMMEDIATE SMOKE

- a. Immediate smoke:
(1) obscures; (2) protects; (3) mark small areas; (4) is more responsive; (5) duration & coverage of the smoke is limited
- b. Elements of the CFF sent in one transmission are as follows:
(1) Observer ID; (2) Warning Order; (3) Target Location; (4) Authentication of transmission
- c. Ex: ***“Echo 3 Delta this is Lima 5 Mike, immediate smoke, grid 711 293, I authenticate Kilo Tango, OVER”***

4. MESSAGE TO OBSERVER

- a. After the fire direction center receives the call for fire, the fire direction officer will determine how the target will be attacked
- b. The attack decision is announced to the forward observer in the form of a message to observer (MTO)
- c. The forward observer will read the MTO back to the fire direction center to ensure confirmation
- d. The MTO consists of the following elements:
 - ◇ **Unit to fire for effect**
 - ◇ **Any changes to requests in the call for fire**
 - ◇ **Method of fire** (number of rounds to be fired)
 - ◇ **Target number**
 - ◇ **PER:** Probable Error in Range - if $\geq 38\text{m}$ (normal mission), or $\geq 25\text{m}$ (precision fire) the FDC informs the observer
 - ◇ **Angle T:** is the mil difference between the OT line and GT line; the FDC would then send a message to the observer that the Angle T exceeded 499 mils
 - ◇ **PRF Code:** Pulse Repetition Frequency Code; used for Copperhead missions
 - ◇ **TOF:** Time of Flight - announced for Copperhead missions, moving targets, high angle, aerial observer missions, or when requested
- e. Ex: ***“Lima 5 Mike this is Echo 3 Delta, MTO, ICM / D, three rounds, AB1001, OUT”***

5. ORDER OF CORRECTIONS

- a. After the initial round is fired, the forward observer transmits subsequent corrections until the mission is terminated
- b. The order of subsequent corrections are transmitted are as follows:

1. Direction	6. Projectile	11. Height of burst
2. Danger close	7. Fuze	12. Target description
3. Trajectory	8. Volume of fire	13. Change in type of mission control
4. Method of fire	9. Deviation	14. Splash
5. Distribution	10. Range	15. Repeat

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18

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9. RANGE CORRECTIONS

- a. Range corrections consist of the commands **ADD** (move burst away from observer) and **DROP** (move burst closer to the observer)
- b. Range corrections are transmitted in multiples of 100 meters; 50-meter corrections may be used when entering fire for effect
- c. Range correction methods:
(1) successive bracketing; (2) hasty bracketing; (3) one-round adjust; (4) creeping fire (used during danger close missions; not corrections greater than 100 meters)
- d. Minimum bracketing guide:

OT DISTANCE	INITIAL BRACKET
0 - 100 m	100 m
1000 - 2000 m	200 m
2000 m +	400 m

10. END OF MISSION STATEMENT

- a. Refinement (optional)
- b. Record as Target (optional)
- c. End of Mission
- d. End of Surveillance (to include battle damage assessment)
- e. Ex: ***“Right 20, Add 10, record as target, target neutralized, estimate 10 casualties, OVER”***

11. ARTILLERY / MORTAR / NAVAL GUNFIRE DEFINITIONS

- a. **AT MY COMMAND:** Command used when observer desires to control exact delivery time of fires
- b. **CHECK FIRING:** Command from anyone in the fire support net to halt firing immediately
- c. **DANGER CLOSE:** Term included with the method of engagement segment of a call for fire which indicates friendly troops are within close proximity of the target; exact distance is determined by the munition fired; creeping method of adjustment will be used exclusively during danger close missions
- d. **DIRECTION:** Used by spotter / observer to indicate the direction from the observer to the target - also known as the observer target line (OTL); when the observer anticipates he will be required to adjust fire, he will send a direction to the FDC
- e. **MARK:** Spotting or illumination round on the deck; used to indicate targets to aircraft, ground troops, or fire support
- f. **REPEAT:** During adjustment, request by the observer to fire again using the same firing data; during fire for effect, a request to fire the same number of rounds using the same method of fire
- g. **SHOT:** Rounds fired. Announced by the FDC to alert the observer
- h. **SPLASH:** Rounds will impact in 5 seconds. Announced by FDC
- i. **SURVEILLANCE:** Battle damage assessment (BDA)
- j. **TIME ON TARGET:** Time the observer desires round(s) to impact the target

MORTAR & ARTILLERY MUNITIONS

100

S M O K E E M P L O Y M E N T

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DELIVERY SYSTEM	TYPE OF ROUND	AVERAGE BURN TIMES	AVG OBSCURATION LENGTH (M) / RND	
			CROSSWIND	HEAD / TAILWIND
60 mm	WP	1 min	75	40
81 mm	WP RP	1 min 1.5-2 min	100 90-150	40 40-50
105 mm	HC WP	3 min 1-1.5 min	250 75	50 50
155 mm	HC WP M825	4 min 1-1.5 min 5-8 min	350 150 350	75 50 100-200
5" / 54	WP	1 min	150	40

I L L U M I N A T I O N F A C T O R S

19

DELIVERY SYSTEM	TYPE OF ROUND	HOB (METERS)	AVG BURN TIMES (SECONDS)	RATE OF FALL (M / SEC)
60 mm	M83A1	160	25	6
60 mm	M83A2/3	160	32	6
81 mm	M301A3	600	60	6
105 mm	M314A2	750	60	10
105 mm	M314A3	750	70 - 75	10
120 mm	M930	500	50	5
155 mm	M118	750	60	10
155 mm	M485A	600	120	5

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MUNITIONS GUIDE FOR ENEMY TARGETS

M I R, INC.

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TARGET DESCRIPTION	WEAPON / ORDNANCE	
	CANNONS	MORTARS
Personnel / Light Vehicles in the open	ICM, DPICM, HE/TI, HE/VT	HE/MOF, HE/VT, HE/TI, HE/PD
Personnel / Light Vehicles w/ light overhead cover	ICM, DPICM, HE/TI, HE/PD, HE/D	HE/MOF, HE/VT, HE/PD, HE/D
Personnel / Light Vehicles in trees	HE/TI, HE/D	HE/MOF, HE/VT, HE/PD, HE/D
Covered Positions / Heavy Vehicles in the open	DPICM, HE/PD, HE/D	HE/MOF, HE/PD, HE/D
Large Bunker Complexes	HE/CP, HE/D, HE/PD	HE/MOF, HE/PD, HE/D
Small Bunkers	Copperhead, HE/CP, HE/PD, HE/D	HE/MOF, HE/PD, HE/D
Armored Vehicles	DPICM, Copperhead, HE/PD, HE/D	HE/MOF, HE/PD, HE/D

HE - High Explosive | CP - Concrete Piercing | PD - Point Detonating | D - Delay | TI - Time | VT - Variable Time | MOF - Multi Option Fuze (which has the following actions: IMP - Impact; DLY - Delay; NSB - Near Surface Burst; PRX - Proximity)

MORTARS

WPN	AMMUNITION		DANGER CLOSE	RANGE (M)		RATES OF FIRE
	MODEL	TYPE		MIN	MAX	
60 m m M224	M720	HE	200M (REG)	70	3489	30 rds / min for 4 minutes, then 20 rds / min sustained. Diameter of illumination: M721 - 500m M83A3 - 300m
	M888	HE		70	3489	
	M722	WP		70	3489	
	M721	ILLUM	400M (UNREG)	200	3489	
	M302A1	WP		35	1830	
	M83A3	ILLUM		725	950	
	M49A4	HE		45	1830	
81 m m M252	M821	HE	400M (REG)	80	5800	18 rds / min for 2 minutes, then 15 rds / min sustained. Diameter of illumination: 650m (both)
	M889	HE		83	5800	
	M374A3	HE		73	4800	
	M819	RP	600M (UNREG)	300	4875	
	M375A2	WP		73	4595	
	M853A1	ILLUM		300	5060	
	M301A3	ILLUM		100	3950	

HE - High Explosive | WP - White Phosphorus | ILLUM - Illumination | RP - Red Phosphorus | REG - Registered | UNREG - Unregistered

QUICK FIRE SUPPORT PLAN

1.000

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FP: _____ SUP: _____ ORIG: _____ MOD BY: _____

H-HOUR: _____ SHEET: _____ OF _____ DTG: _____

T A R G E T I N F O R M A T I O N

LINE	TARGET # (a)	DESCRIPTION (b)	LOCATION (c)	ALT ASL M/FT (d)	REMARKS (e)
1					
2					
3					
4					
5					
6					
7					

S C H E D U L E

LINE	ORG (f)	FIRE UNIT (g)	TIMINGS (h)	REMARKS (i)
1			
2			
3			
4			
5			
6			
7			

NOTES: _____

ANGLE & RANGE ESTIMATION

1-01

CONVERSIONS & FORMULAS

MIL RELATION FORMULA

$W = R \times \text{mils}$ (Width of lateral shift = Range (km) x mils)

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Example: The observer knows that the distance from his location to a known point (church) is 2,500 meters. With binoculars, the observer measures an angular deviation of 62 mils from the church to the target. The observer calculates the lateral shift as follows:

$W = 2500/1000 \times 62 = 155 \text{ meters} = \text{approximately } 160 \text{ meters (lateral shift expressed to nearest 10 meters.)}$

The observer transmits: **"LEFT 160"** to FDC

CONVERSION FACTORS

- | | |
|-------------------------------|------------------|
| a. 1 DEGREE = 17.777 MILS | g. 12 IN = 1 FT |
| b. 1 MIL = 3.438 MOA | h. 3 FT = 1 YD |
| c. 1 MIL = 3.9 IN @ 100 M | i. 1 M = 3.3 FT |
| d. 1 MOA = 1.145 IN @ 100 M | j. 1 YD = 0.91 M |
| e. 1 MIL = 3.6 IN @ 100 YDS | k. 1 M = 1.1 YDS |
| f. 1 MOA = 1.047 IN @ 100 YDS | |

21

MIL ANGLE ESTIMATION

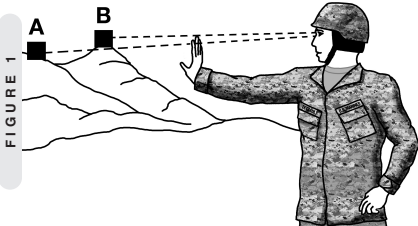


FIGURE 1: Use the method in the example, depicted to the left, with the hand positions, illustrated below, to estimate the number of mils between two visible points.

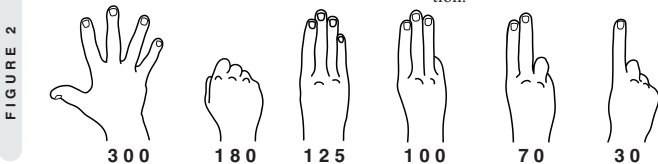
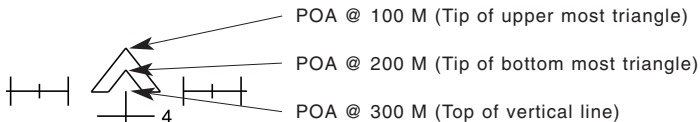
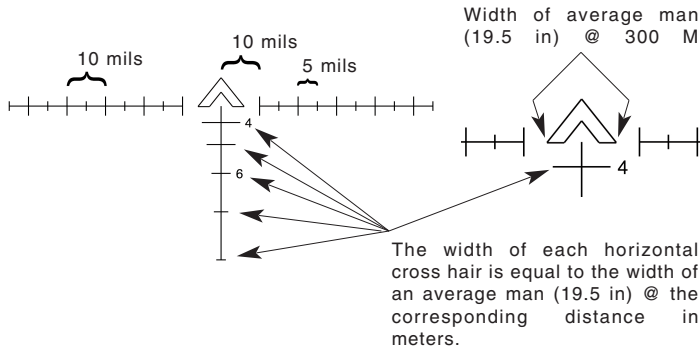


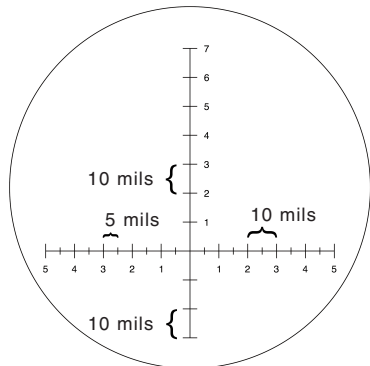
FIGURE 2: The numbers listed beneath the corresponding hand illustration represent the approximate number of mils between two points for that specific hand position.

RETICLE PATTERNS & DESCRIPTIONS

TA31RCO TGT REF SYS (ACOG)



M 22 BINOCULAR



- Graduated every 5 MILS.
- Labeled every 10 MILS.
- Visually interpolate to 1 MIL.
- Horizontal Scale used in lateral adjustments (adjust fire).
- Angular deviation is 100 MILS total.

RISK-ESTIMATE DISTANCES

1-01

WARNING 0.1% PROBABILITY OF INCAPACITATION (PI) ARE FOR COMBAT USE ONLY DURING "DANGER CLOSE" SITUATIONS AND ARE NOT MINIMUM SAFE DISTANCES FOR PEACETIME TRAINING.

DANGER CLOSE

L58A

Ordnance delivery inside 0.1% PI will be considered "Danger Close". The supported commander must accept responsibility for the risk to friendly forces when targets are inside 0.1% PI distance. The supported commander will pass his initials to terminal controllers to pass to attacking aircraft, indicating acceptance of the risk inherent in ordnance delivery inside the 0.1% PI distance.

CANNON RISK-ESTIMATE DISTANCES

The term "Danger Close" is used when there are friendly troops or positions within a prescribed distance of the target. This is simply a warning and not a restriction to the maneuver commander and the fire direction center to take proper precautions. Risk-estimate distances are defined as the distance in meters from the intended center of impact at which a specific degree of risk and vulnerability will not be exceeded. The risk is expressed as the *Probability of Incapacitation* (PI), which is the probability that a Marine will suffer an incapacitating injury. Percent PI value is less than or equal to 1 chance in 1,000 (0.1%).

CANNON RISK-ESTIMATE ASSUMPTIONS

Cannon risk estimates were calculated using the following assumptions:

- Gun target line is perpendicular to the FLOT.
- An observer has adjusted the fires onto the target. Unadjusted fire for effect (FFE) fires may entail greater risk.
- The friendly troops are standing unprotected in the open, in winter clothing and helmet, and on a line perpendicular to the line of fire.
- Note that friendly forces outside the PI distance may still be subject to weapon fragments, but at a lower risk. Commanders and fire supporters must carefully weigh the choice of ordnance and the accuracy and proficiency of the firing unit in relation to the risk of fratricide. Taking steps to protect friendly forces (e.g. prone, behind cover) can reduce the risk.

CANNON RISK-ESTIMATE DISTANCES (HEDP / VT)

ITEM/SYSTEM	DESCRIPTION	10% PI (METERS)			0.1% PI (METERS)		
		1/3 RANGE	2/3 RANGE	MAX RANGE	1/3 RANGE	2/3 RANGE	MAX RANGE
M224	60 MM MORTAR	60	65	65	100	150	175
M252	81 MM MORTAR	75	80	80	165	185	230

CANNON DANGER CLOSE DISTANCES

ITEM/SYSTEM	DESCRIPTION	UNREGISTERED INDIRECT	REGISTERED INDIRECT
M224	60 MM MORTAR	400 M	200 M
M252	81 MM MORTAR	600 M	400 M
ARTILLERY	ALL	600 M	500 M

SMALL ARMS DANGER CLOSE DISTANCES

ITEM/SYSTEM	DESCRIPTION	DIRECT FIRE
SMALL ARMS	ALL	100 M / 15 DEGREES (266.7 MILS)

AIRCRAFT MUNITION RISK-ESTIMATE ASSUMPTIONS

Users must fully understand the assumptions used to develop these risk-estimate distances. All values were calculated using the General Fullspray Personnel Program from the Joint Technical Coordinating Group for Munitions Effectiveness at Eglin AFB. Commanders should familiarize themselves with the CLASSIFIED assumptions (see MCRP 3-16.6A, page 107). Combining the CLASSIFIED assumptions with the risk-estimate numbers makes both sets of numbers CLASSIFIED. The following risk-estimate table depicts a “worst-probable” case scenario.

AIRCRAFT DELIVERED ORDNANCE RISK-ESTIMATE DIST.			
WEAPON	DESCRIPTION	10% PI (METERS)	0.1% PI (METERS)
Mk-82 LD ¹ contact	500 lb Bomb	105	245
Mk-82 LD ^{1,2} airburst	500 lb Bomb	135	300
Mk-82 HD ^{2,3} airburst	500 lb Bomb	155	280
Mk-83 LD contact	1000 lb Bomb	120	305
Mk-83 LD ¹ airburst	1000 lb Bomb	145	340
Mk-84 LD ¹ contact	2000 lb Bomb	110	315
Mk-84 LD ¹ airburst	2000 lb Bomb	140	380
CBU-87 ⁴ / CBU-89 ⁴	CEM or GATOR	180	265
CBU-99/100 ⁴ , Mk-20 ⁴	Rockeye	140	230
CBU-103/104 (WCMD)	CEM or GATOR	90	155
M151 / M229 / M261 ⁵	2.75" Rkts (med alt) ⁷	190	365
M151 / M229 / M261 ⁵	2.75" Rkts (low alt) ⁷	115	225
Zuni-Contact ⁵	5" Rockets (low alt)	125	290
M61A1	20mm Gatling	35	60
GAU-12	25mm Gatling	30	55
GPU-5A / M230A1	30mm Gatling / Chain	25	40
GAU-8 (A10)	30mm Gatling	40	65
AC-130	25mm / 40mm	35 / 25	65 / 75
AC-130	105mm Cannon	65	165
GBU-12	500 lb LBG	50	170
GBU-16	1000 lb LBG	75	195
GBU-10/24	2000 lb LBG	70	250
GBU-38 contact	500 lb JDAM ^{6,7}	55	185
GBU-32 contact	1000 lb JDAM ^{6,7}	75	210
GBU-31 contact	2000 lb JDAM ^{6,7}	80	265
AGM-130 ⁷	2000 lb TV Guided	70	220
AGM-158A	JASSM ^{6,7}	55	210
AGM-65 ⁷	Maverick (all)	35	95
AGM-114K	Hellfire	40	110

¹ LD = Low Drag / ² Airburst Fuzing (DSU-33) / ³ HD = High Drag / Air Inflatable Retarder (AIR)

⁴ Not recommended for use with troops in contact / ⁵ Fixed-wing only; helicopter numbers not available

⁶ Refer to JFIRE Appendix D for use with troops in contact / ⁷ Classified munition profile

CAS CONTROLLER GUIDANCE

Always try to provide an accurate correction from the MARK, from LEAD, or from DASH 2's hit(s) in the following format: "From (the MARK / LEAD's HIT / DASH 2's HIT), (direction in degrees magnetic), (distance to the nearest 10 meters)." Example: "From LEAD's hit, northwest 100." or "From the MARK, south 50."

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Don't hesitate to be creative or use unorthodox methods for position marking, target marking, instructions, or guidance to ensure that the CAS is effective.

TECHNIQUES FOR MARKING YOUR POSITION:

6 digit grid coordinate or better, Talk-On, Air Panel, Smoke (DO NOT CALL COLOR), TRP, Checkpoint, Street Name / Intersection, Building / City Grid Reference Number, IR Strobe, Chemlight Buzzsaw, Etc.

TECHNIQUES FOR MARKING THE TARGET:

6 digit grid coordinate or better, Talk-On, M203 Smoke, Artillery / Mortar Smoke, Tracer Fire, SHIFT from a TRP / Checkpoint / Geographical Reference, Building / City Grid Reference Number, IR Pointer (IZLID, PEQ-4, PEQ-2), Etc.

CAS AIRCRAFT CHECK-IN DATA

AIRCRAFT TRANSMITS TO TERMINAL CONTROLLER

23

CALL SIGN: _____ ID/MS #: _____

NUM/TYPE A/C: _____ POS/ALT: _____

ORDNANCE:

DASH 1 _____

DASH 2 _____

DASH 3 _____

DASH 4 _____

TIME ON STATION: _____ ABORT CODE: _____

ADDITIONAL REMARKS / CAPABILITIES: _____

FAC(A) LST LTD LIGHTENING POD GLTD
 NVGs SPARKLE LOW ALTITUDE CAPABLE (FW)

CAS 6 - LINE BRIEF

1.00

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PATENT No. 7,056,860

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NON-STANDARD ROTARY WINGED CAS

NOTE: OMIT DATA NOT REQUIRED; DO NOT TRANSMIT LINE NUMBERS.

TERMINAL CONTROLLER

THIS IS

(HELO CALL SIGN)

(TERMINAL CONTROLLER CALL SIGN)

WARNING ORDER

FIRE MISSION, **OVER**

LINE 1 CONTROLLER POSITION:

MY POSITION IS _____
(GRID, TERRAIN FEATURE, ETC.)

MARKED BY _____ **OVER**
(TALK ON, AIR PANEL, IR STROBE, ETC.)

LINE 2

DIRECTION: _____
(DIRECTION FROM CONTROLLER TO TARGET IN DEGREES)

LINE 3

DISTANCE: _____
(DISTANCE FROM CONTROLLER TO TARGET IN METERS)

LINE 4

TARGET: _____
(TARGET DESCRIPTION)

LINE 5

TYPE MARK: _____
(WP • LASER • IR • BEACON)

LINE 6 REMARKS:

EX: COME OVER MY LEFT SHOULDER, PUSH ASAP, REPORT WINGS LEVEL, GUNS ONLY, ETC.

TIME ON TARGET (TOT) TIME TO TARGET (TTT) IMMEDIATE

LINE 1 IP/BP: Initial point (IP) is used for fixed-wing aircraft. It is the 5 - 15 nautical mile run into the target. A battle position (BP) is used for rotary-wing aircraft. It is 3,000 - 5,000 meters from the target. It is a large area (1000 x 1000 m or >) from which a rotary wing aircraft engages the target.

LINE 2 HEADING: The heading is given in degrees magnetic from the IP (or center of the BP) to the target. The offset (left or right) indicates the side of the IP to target line that aircrews can maneuver in while in the target area. Saying *degrees magnetic* after the number is not necessary.

LINE 3 DISTANCE: The distance from the IP/center of the BP to the target. Nautical miles for fixed-wing; meters for rotary-wing. Saying *nautical miles/meters* after the number is not necessary.

LINE 4 TARGET ELEVATION: The target elevation is given in feet above mean sea level.

LINE 5 TARGET DESCRIPTION: The target description is brief and concise, containing the number, type of target, degree of protection, activity & configuration. Example: *4 APCs on road, stationary...Bunker complex...Tank column in open, moving north to south.*

LINE 6 TARGET LOCATION: Six digit UTM grid or as latitude/longitude.

LINE 7 TYPE MARK: The type of mark used: e.g., WP, RP, laser (include 4 digit code), illumination on the deck, HE, mirror flash. If no mark is available, use available references (roads, steams, open areas, other prominent terrain).

LINE 8 LOCATION OF FRIENDLY: Cardinal direction (N, S, E, W) and distance (in meters) from the target to the nearest friendly position.

LINE 9 EGRESS: Instructions the aircraft will follow to exit the target area after engaging the target. It includes direction to turn out of the target area and a control point to which the aircraft will fly. Use the word "Egress" before the instruction.

REMARKS: If applicable, additional threats, hazards, weather, final attack heading, artillery gun target lines, etc. can be given here.

TIME ON TARGET: Time on target (TOT) is the synchronized, universal clock time when ordnance will hit the target. There is no time "HACK" for TOT. TOT is the preferred towing method. GPS can provide a common time reference; if not available, the terminal controller can still execute a TOT mission by synchronizing time using a watch as a reference. It is passed to the aircraft as a number of minutes past the hour (e.g., 1624 would be 24 and communicated: **Time on target 24**).

TIME TO TARGET: Time to target (TTT) is the number of minutes & seconds after the "HACK" that ordnance will hit the target (e.g., 4 minute would be passed as 4 plus 00). Immediately after the minutes & seconds are passed, "HACK" is said. The pilot then punches a stopwatch in the aircraft and prepares to put bombs on the target at the requested time. Example: **Stand by for time to target...time to target 4 plus 00...HACK**. (Note: "HACK" indicates all participants start the countdown).

AMPLIFYING REMARKS: Anything else that is pertinent to the mission must also be passed to the pilot. If a further explanation of the target area will assist the pilot in locating the target, that information is passed after the TOT/TTT has been passed. There is no format for this information. Communicate with the pilot using plain language.

NOTE: OMIT DATA NOT REQUIRED; DO NOT TRANSMIT LINE NUMBERS.

TERMINAL CONTROLLER

L58A

(AC-130 GS CALL SIGN)

THIS IS

(TERMINAL CONTROLLER CALL SIGN)

WARNING ORDER

FIRE MISSION, **OVER****LINE 1** CONTROLLER POSITION / FRIENDLY LOCATION:

MY POSITION IS

(GRID, TERRAIN FEATURE, ETC.)

MARKED BY

*(FLOT - L | C | R, TALK ON, AIR PANEL, IR STROBE, ETC.)***OVER****LINE 2** TARGET LOCATION:

25

*(MAGNETIC BEARING & RANGE [METERS], TRP, GRID, ETC.)***LINE 3** TARGET DESCRIPTION / MARK:

(TARGET DESCRIPTION)

MARKED BY

*(SINGLE IR POINTER, TRACER, ETC.)***OVER****LINE 4** REMARKS:

(THREATS, DANGER CLOSE CLEARANCE, RESTRICTIONS, AT MY COMMAND, ETC.)

AS REQUIRED AC-130 GUNSHIP INFORMATION

CLEARANCE

Transmission of the fire mission is clearance to fire (unless DANGER CLOSE). For AC-130 Gunship Danger Close Risk-Estimate Distances, see the RISK-ESTIMATE DISTANCES section, page 2, Table: AIRCRAFT DELIVERED ORDNANCE RISK ESTIMATE DISTANCES, lines 18 & 19. For closer fire, the observer must accept responsibility for increased risk. Transmit “**Cleared Danger Close**” (with commander’s initials) in the *REMARKS* line. This clearance may be preplanned.

AT MY COMMAND

For positive control of a gunship, transmit “**At My Command**” in the *REMARKS* line. The AC-130 Gunship will reply: “**Ready To Fire**” when ready.

ADJUSTING AC-130 GUNSHIP FIRE

If there is a significant miss distance or the wrong target is engaged, adjust the round impact by giving the range (meters) and the cardinal direction (north, south, east, west) from the impact to the target.

Marking / confirming targets can also be accomplished using covert illumination (BURN) or with a laser pointer (SPARKLE).

To move the BURN or SPARKLE, transmit “**MOVE BURN / SPARKLE 300 METERS WEST**” or “**ROLL BURN / SPARKLE 100 METERS EAST**”.

Once BURN or SPARKLE is over the target, transmit “**FREEZE BURN / SPARKLE**” (if the word STOP is transmitted, the AC-130 Gunship will cease firing).

MARKING FRIENDLY POSITION

Designate the FLOT with IR chemlights: LEFT - CENTER - RIGHT

DON'Ts

- 1 Do **NOT** ask the AC-130 Gunship to identify colors.
- 2 Do **NOT** reference clock positions.
- 3 Do **NOT** pass run-in headings / no-fire headings (give no-fire areas & friendly troop positions only).
- 4 Do **NOT** correct left / right or short / long.
- 5 Do **NOT** mark all of your Marine with GLINT tape.
- 6 Do **NOT** have multiple IR pointers (PEQ-2A) illuminated; ENSURE only a single IR pointer is being used to mark the target.
- 7 Do **NOT** shine IR pointers in the direction of the AC-130 Gun Ship; it will assume it is being targeted.

COMMON LOGISTICAL & ENGINEERING CONSIDERATIONS

1-00

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PATENTS PENDING

26

OTHER

PATENT No. 7,056,860

M I R, INC.

VEHICLE	FUEL TYPE	FUEL CAPACITY (GAL)	FUEL EFFICIENCY
MTVR	DIESEL	78	3.8 MPG
HMMWV / MAK	DIESEL	25	5.6 MPG
IFAV	DIESEL	26	18.2 MPG
LAV	DIESEL	70	5.7 MPG
AAV	DIESEL	171	1.0 MPG
MK48	DIESEL	150	16.6 MPG
M1A1	DIESEL	504	30 - 35 GAL/HR
TRAM	DIESEL	75	6 GAL/HR
BHL	DIESEL	33	N/A
D-7 DOZER	DIESEL	115	6 GAL/HR

VEHICLE	RANGE (MILE)	MAX LOAD (LBS)	FORD DEPTH (IN)
MTVR	300	30,000	60
HMMWV / MAK	142	N/A	60
IFAV	473	N/A	30
LAV	400	N/A	N/A
AAV	250	28,000	N/A
MK48	450	N/A	60
M1A1	250	140,000	96
TRAM	N/A	11,000	48
BHL	N/A	N/A	N/A
D-7 DOZER	N/A	N/A	36

VEHICLE	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	WEIGHT (LBS)
MTVR	325	98	141	27,800
HMMWV / MAK	194	95	71	9,500
IFAV	180	66	53	5,440
LAV	255	99	123	26,180
AAV	324	120	120	59,480
MK48	239	96	96	24,517
M1A1	356	137	114	118,000
TRAM	308	105	132	35,465
BHL	275	89	104	18,800
D-7 DOZER	273	144	132	50,000

VEHICLE	TROOP CAPACITY	EXTERNAL LIFT
CH-46	12 COMBAT LOADED	3,000 LBS
CH-53	24 COMBAT LOADED	15,000 LBS

VEHICLE	MAX LOAD / CAPACITY
M101 TRAILER	1000 LBS
M105 TRAILER	2500 LBS
M149 WATERBULL	400 GAL

ITEM	WEIGHT (LBS)
55 GAL DRUM DIESEL	432 LBS
5 GAL DIESEL	46 LBS
5 GAL WATER	47 LBS
1 PALLET MRE (48 CASES)	1325 LBS
1 CASE MRE	27 LBS

ITEM	LENGTH
CONCERTINA WIRE STRAND	15 METERS
ENGINEER TAPE ROLL	170 METERS

MEP-831 (TQG)	
FREQ:	3KW 60Hz
VOLT:	120/240 1ph
FUEL CAP:	4.0 gal JP Fuel
OIL CAP:	3 quarts
AIR COOLED:	YES
OIL CAP:	326 lbs
AIR COOLED:	0.5 gal per hour
There are two (2) load studs that can take 16 Amps each. Everything that is to be plugged in, will have the amps listed. Avoid overloading by balancing your loads on both studs.	

DISTANCE CONVERSION
1 Mile = 1.61 Kilometers
1 Kilometer = 0.62 Miles

HESCO				
THREAT	MIL 8 (4'6" x 4' x 30')		MIL 10 (7' x 5' x 95')	
	GOOD FILL	POOR FILL	GOOD FILL	POOR FILL
SMALL ARMS (Single Rd)	1	1	1	1
SMALL ARMS (Burst)	1	2	1	1
CANNON (HE Volley)	1	2	1	2
CANNON (AP Volley)	2	2	1	2
RPG-7	1	2	1	2
GRENADE	1	1	1	1
MORTAR (Up to 81mm)	1	1	1	1
ARTY & MORTAR (> 81mm)	2	2	2	2
AIR DELIVERED BOMB	3	3	3	3

LITHIUM BATTERIES			
NOMEN	TYPE / USE	NSN	UNIT OF ISSUE
BA-5390	PRC-119	6135-01-501-0833	4pks of 4 per case (16 total)
BA-5590	PRC-119	6135-01-501-0833	4pks of 4 per case (16 total)
BA-5347	PAS-13	6135-01-501-0833	50 per package
BA-5372	PCR-119 HUB	6135-01-501-0833	10 per package
BA-5567	NVG	6135-01-501-0833	12 per package
BA-5600	M-DACT	6135-01-501-0833	8 per package
BA-5599		6135-01-501-0833	4 per package
BA-5800	PAN-11	6135-01-501-0833	1 each
BA-5123	3 VOT	6135-01-501-0833	12 per package
2CR-5	VECTOR	6135-01-501-0833	1 per package

DODIC	NOMENCLATURE	UNIT PACK	WEIGHT (LBS)	CANS / UP
A011	12 Ga Shotgun #00 Buckshot	320	60.0	2
A059	Ctg 5.56mm Ball	1680	66.0	2
A062	Ctg 5.56mm Ball Linked	1600	69.7	2
A063	5.56mm Tracer M868 Single Rd	1640	66.2	2
A131	Ctg 7.62mm Linked 4&1	800	77.8	4
A136	Ctg 7.62mm Ball Match Ctn Pack	920	73.4	2
A143	Ctg 7.62mm Ball Linked	800	77.8	4
A363	Ctg 9mm Ball	2000	79.7	2
A555	Ctg .50 Cal Linked Blank	200	77.1	2
A576	.50 Cal Linked 4+1	100	77.1	100
A976	Ctg 25mm TP-T Linked	30	50.0	1
A- - -	Ctg 40mm Smk Grnd Marker/Para	22	45.9	1
BA12	40mm Practice Grnd, Linked	32	42.0	32
B519	Ctg 40mm Practice	100	61.0	4
B535	Ctg 40mm White Star Para	22	45.9	1
B546	Ctg 40mm HEDP	72	53.5	1
B542	Ctg 40mm HEDP Linked	32	45.0	1
B643	Ctg 60mm HE	16	101.0	2
B646	60mm Smk White Phosphorus	16	112.0	2
B647	60mm Illuminating	16	110.0	2
C784	Ctg 120mm TP-T	1	89.0	1
C785	120mm TPCSDS-T	1	65.0	25
C869	Ctg 81mm HE w/ PD Fz	3	57.0	1
C870	81mm Smoke RPM819 w/ MTSQ	3	63.0	3
C871	81mm Illum M853A1 w/ Fz M772	3	58.7	3
C995	Ctg 84mm (AT-4) & Launcher	5	150.0	1 box
D505	Proj 155mm Illum w/o Fz	8	782.0	1 skid
D540	Chg Prop 155mm Green Bag	2	29.0	1
D541	Chg Prop 155mm White Bag	1	30.5	1
D544	Proj 155mm HE w/o Fz	8	797.0	1 skid
N289	Fuze ET	16	45.8	8
N340	Fuze PD	16	46.0	8
N523	Primer Perc M82	800	49.0	40
G881	Grenade Hand Fragmentation	30	51.0	1
G900	Grenade Hand Incendiary	16	47.0	1
G924	Grenade Hand Riot CS	50	50.0	1
G940	Grenade Hand Smoke Green	16	39.0	1
G945	Grenade Hand Smoke Yellow	16	39.0	1
G963	Grenade Hand Tactical CS	16	31.0	1
G982	Grenade Hand Smoke TA, M83	16	34.0	1

DODIC	NOMENCLATURE	UNIT PACK	WEIGHT (LBS)	CANS / UP
HX05	Rocket Assault 83mm (SMAW)	6	136.0	1 box
HX07	Rocket 83mm HEAA Prac (SMAW)	6	136.6	1 box
J144	Rocket Motor 5 Inch, MK 22-1	1	191.0	1 box
K002	Activator F/Mine AT Prac	180	55.2	1 box
K051	Fuze F/Mine AT Prac	144	62.0	2
K143	Mine AP M18A1 (Claymore)	6	53.0	1 box
K765	Riot Control Agent CS (caps)	1250	4.0	50
K867	Smoke Pot Floating HC	1	48.0	1 box
L275	Signal Smoke & Illum, Marine	108	93.0	18
L367	Simulator, AT Weap Eff M22	150	36.0	15
L495	Flare, Surface Trip M49 Series	32	42.5	1
L- - -	Signal Illum Grenade	36	68.0	1 box
M028	Bangalore Torpedo	1	198.0	1 box
M030	Chg Demo Block 1/4 Lb TNT	192	84.0	1 box
M032	Chg Demo Block 1 Lb TNT	50	71.5	1 box
M039	Chg Demo Cratering 40 Lb	1	59.0	1 box
M130	Cap Blasting SPL Electric	60	76.0	2
M131	Cap Blasting Non-Electric	10	2.0	4
M420	Chg Demo Shaped 15 Lb	3	65.0	1 box
M421	Chg Demo Shaped 40 Lb	1	65.0	1 box
M456	Cord Detonating (Ft)	500 / 1000	38.2	1
M591	Military Dynamite	100	67.0	50
M670	Fuze Blasting Time (Ft)	4000	107.0	500
M757	Chg Assembly Demo	2	57.0	1 box
M766	Igniter Fuze Blasting Time	5	28.6	5
M913	Chg Demo Linear HE, M58 (TRLR)	1	2042.0	1 Lg box
M980	Sheet Explosive C2	38 ft	60.0	1
ML03	Firing Device Multi-Purpose	56	43.0	14
ML25	Chg Demo Linear HE, M59 (AAV)	200	10.0	-
MM26	Det-A-Prime Booster	200	10.0	-
MM30	Booster 20g WG20	240	17.0	1
MM44	FLSC 75 grain	6	72.8	1
MM48	FLSC 600 grain	6	25.97	1
MM46	FLSC 225 grain	6	21.892	1
MM56	Det, Non-Electric MK123 Mod 0	8	42.9	-
MN79	APOBS (Bangalore Replacement)	2 Backpacks	120.0	1
MU41	Cord Detonating 200 Gr (Ft)	1200	36.0	1
MU42	Cord Detonating 100 Gr (Ft)	1600	34.0	1
MU43	Cord Detonating 600 Gr (Ft)	250	33.0	1
WF10	Guided MISSILE TOW	1	87.0	1 box

WEAPON CAPABILITIES

1-00

WEAPON	M E R	AMMUNITION	RATES OF FIRE (R / M)		E C R	REMARKS
			RAPID	SUSTAINED		
Hand Grenade Fragmentation M67	40	HE	N/A	N/A	15m	4 - 5 second fuze delay
White Phosphorus Grenade M34	30	WP	N/A	N/A	35m	4 - 5 second fuze delay
Riot Control Grenade M7A2	40	CS	N/A	N/A	25m	2 second fuze delay; 20 - 60 second function
Riot Control Grenade M25A2	50	CS	N/A	N/A	5m	1.3 - 4 second fuze delay
Incendiary Grenade AN-M14	N/A	Thermite	N/A	N/A	Will burn through 0.5 in. of steel	2 second fuze delay; 40 second burn at 4,000° F
Illumination MK1	40	Illumination	N/A	N/A	Illuminates 200m	7 second fuze delay
Smoke Colored M18	35	Yellow, Red, Green	N/A	N/A	N/A	2 second fuze delay
Pistol 9mm M9	50	Ball	N/A	N/A	N/A	None
Rifle 5.56 M16A4	550 PT 800 AT	Ball, Tracer	N/A	12 - 15	N/A	May be fired semiautomatic or 3 round burst
Grenade Launcher 40mm M203	150 PT 350 AT	HE, WC, WSP, HEDP, CS, Multiprojectile, HE Bounding	Max Eff: 7 - 9 Rds/Min	N/A	5m	M203 is mounted under the M16A4
Squad Automatic Weapon 5.56 M249	800 PT 1,000 AT	Ball & Tracer 4 + 1 Link	200	85	N/A	Fire from link belt or M16 magazine; Grazing fire 600m 3 - 5 round burst
Machine Gun 7.62 M240B	1,800	Ball & Tracer 4 + 1 Link	200	100	N/A	Grazing fire 600m 6 - 8 round burst
Machine Gun .50 HB M2	1,830	HEDP	40 +	< 40	2 in. of steel at 90 degrees	Grazing fire 1,000m designed to be fired in 3 - 5 round bursts
Automatic Grenade Launcher 40mm MK-19	1,500	HEDP, TP	60	40	15m 2 in. steel	Max Range: 2,212m Min safe range: Combat - 75m Training - 310m

NOTES: M E R (Maximum Effective Range in meters), R / M (Rounds per Minute), E C R (Effective Casualty Radius), PT (Point Target), AT (Area Target)

WEAPON	M E R	AMMUNITION	RATES OF FIRE (R / M)		E C R	REMARKS
			RAPID	SUSTAINED		
Assault Rocket Launcher 83mm ARL SMAW	250 PT 400 AT HEDP 500 HEAA	HEDP, HEAA, 9mm tracer, practice	N/A	N/A	7.5 ft. reinforced sandbags; 8 in. concrete; 12 in. brick; 1 in. armor	9mm spotting rifle & rocket launcher are ballistically matched
AT-4	300	HEAT	N/A	N/A	In excess of 17 in. of steel	Minimum range: 10m
TOW M220	3,750	HEAT	N/A	N/A	In excess of 25 in. of steel	Minimum range: 65m
Mortar 60mm M224	M720 HE: 3,500 M772 WP: 3,500 M721 ILLUM: 3,200	HE, WP, ILLUM	30	20	HE: 27.5m WP: 10m ILLUM: 500m radius for 40 seconds	FPF for Section: 30m x 90m
Mortar 81mm M252	M889 HE: 5,700 M375 WP: 4,500 M853A1 ILLUM: 5,100	HE, WP, RP, ILLUM, IR ILLUM	30 / 2 minutes	15	HE: 35m WP: 15m ILLUM: 500m radius for 60 seconds IR ILLUM: 500m radius for 74 seconds	M532 proximity fuze is available. The fuze functions 3 - 30 ft. above ground. FPF for Section: 140m x 35m FPF for Platoon: 280m x 35m
Howitzer 155mm M198 (Towed)	Chg 7: 14,700 Chg 7 Red: 18,100 RAP: 30,000	HE, ILLUM, WP, SMK, ICM, ADAM, RAAM, HD, GB, VX, CLGP Fuzes: Q, D, Ti, VT, CP	4	2	50m	FPF for Battery: 300m x 50m
5 Inch / 54	21,887	HC, ILLUM, HE, WP Fuzes: PD, MT, VT, CVT, Delay	20	16	45m	None
LAV 25mm	2,000	HE-I, APDS target practice	200	100	Will penetrate a BMP at 2,200m	None
Tank 120mm	4,000	HEAT, HEP, APDS, WP, APERS	Crew Dependent		HEAT / APDS is effective against all types of armor at 2,200m	None

NOTES: M E R (Maximum Effective Range in meters), R / M (Rounds per Minute), E C R (Effective Casualty Radius), PT (Point Target), AT (Area Target)

COMMON WEAPON THREAT CHARACTERISTICS

1-00

SMALL ARMS

WEAPON	RANGE	REMARKS
AK-47, 7.62mm	300m	Asia, Middle East, China, Finland, North Korea
AK-74, 5.45mm	400m	None
RPK-74, 5.45mm Lgt MG	800m	None
FN, 7.62mm FAL Rifle	650m	None
65, 7.62mm H&K Rifle	800m	None
SVD, 7.62mm Sniper Rifle	900m	None
RPD, 7.62mm Lgt MG	800m	China, Vietnam, North Korea, Egypt Pakistan

CREW-SERVED WEAPONS

WEAPON	RANGE	REMARKS
AGS-17, 30mm Automatic Grenade Launcher	1,730m	None
SG43 / SGM Goryunov 7.62mm Med MG	1,000m	Middle East, Africa, Asia
KYPT, 14.5mm Hvy MG	2,000m	None
NSV, 12.7mm Hvy MG	2,000m	None
KPV, 14.5mm Hvy MG	2,000m	Mounted on BTR-60/70/80, BRDM-2
M37, 82mm Mortar	3,000m	None
M43, 120mm Mortar	5,700m	None

ROCKET-PROPELLED GRENADE (RPG)

WEAPON	RANGE	REMARKS
RPG-7, Rocket	300-500m	None
RPG-16, Rocket	500-800m	None
RPG-18, Rocket	200m	None
RPG-22, Rocket	250m	None

ARTILLERY

WEAPON	RANGE	REMARKS
D-30 122mm Howitzer	15.4 km	None
2S5 152mm SP Gun	28-33 km	None

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PATENTS PENDING

29

OTHER

PATENT No. 7,056,860

M I R, INC.

ARMORED VEHICLE WEAPONS

WEAPON	RANGE	REMARKS
23mm Cannon: ZSU 23	2,500m	None
125mm Main Gun: T-64, T-72, T-80	2,000-2,500m	None
30mm Cannon: BMP	1,800-2,000m	None

ANTI-TANK GUIDED MISSILES (ATGM)

WEAPON	RANGE	REMARKS
Malyutka (AT-3)	3,000m	None
Fagot (AT-4)	2,500m	None
Konkurs (AT-5)	4,000m	None
Shturm (AT-6)	5,000m	None
Metis (AT-7)	1,000m	None
Kobra (AT-8)	4,000m	None
Ataka (AT-9)	6,000m	None
Basnya (AT-10)	4,000m	None
Svir (AT-11)	5,000m	None
Metis (AT-13)	1,500m	None

ANTI-AIRCRAFT WEAPONS

WEAPON	RANGE	GUIDANCE	REMARKS
ZSU-23-4	2.5 km 3 km	Optical Track Radar Track	Cyclic rate of fire: 4,000 rounds per minute
SA-6	24 km	Radar	Tracked vehicle
SA-7	3.5 km	IR Heat Seeker	Man portable
SA-8	10 km	Radar	Wheeled vehicle
SA-9	8 km	IR Heat Seeker	BRDM vehicle
SA-14	4.5 km	IR Heat Seeker	Man Portable
SA-16	5.2 km	IR Heat Seeker	Man Portable
SA-60 57mm Antiair	6 km	Radar tracked towed	4.2 km optical track

MILITARY SYMBOLOGY

1-01

BASIC MILITARY SYMBOLS

UNIT SIZES

FIRE TEAM 	SQUAD 	SECTION 	PLATOON 	COMPANY
BATTALION 	REGIMENT 	BRIGADE 	DIVISION 	MEF / CORPS

FRAMES

UNIT 	ENEMY UNIT 	EQUIPMENT 	CP 	OP
-----------------	-----------------------	----------------------	---------------	---------------

UNIT TYPES

INFANTRY 	RECON 	ARMOR 	MECH INF 	ARM RECON
AMPHIB ASLT 	ARTILLERY 	ANTI-TANK 	ENGINEER 	AIR DEFENSE
ELECTRONIC WF 	MEDICAL 	TRANSPORTATION 	MAINTENANCE 	SIGNAL

EXAMPLES

E Co, 2BN, 1ST MAR 	ENEMY INF SQUAD
-------------------------------	----------------------------

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PATENTS PENDING




30




OTHER




PATENT No. 7,056,860




M I R, INC.




WEAPONS




RIFLE / MACHINE GUN		
RIFLE 	LIGHT 	HEAVY 




MORTAR		
LIGHT 	MEDIUM 	HEAVY 




HOWITZER		
LIGHT 	MEDIUM 	HEAVY 

ANTI-TANK GUN		
LIGHT 	MEDIUM 	HEAVY 




ANTI-TANK ROCKET		
LIGHT 	MEDIUM 	HEAVY 


ANTI-TANK MISSILE		
LIGHT 	MEDIUM 	HEAVY 


AIR DEFENSE GUN		
LIGHT 	MEDIUM 	HEAVY 

SURFACE-TO-AIR-MISSILE		
SHORT 	MEDIUM 	LONG 

ARMOR


TANK		
LIGHT 	MEDIUM 	HEAVY 


APC



AFV


WIRE / FENCE

UNSPECIFIED WIRE / FENCE


DOUBLE APRON FENCE


SINGLE CONCERTINA


DOUBLE CONCERTINA


LAND MINES

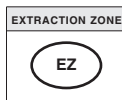
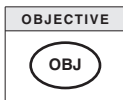
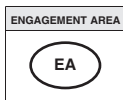
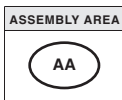
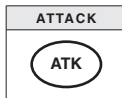
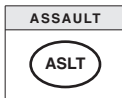
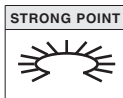
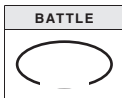
UNSPECIFIED


CLAYMORE

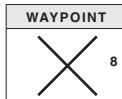
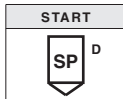
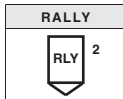
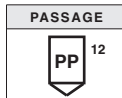
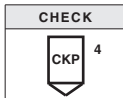
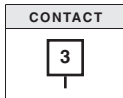

LESS THAN LETHAL


CONTROL MEASURES

POSITIONS



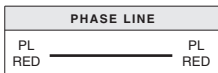
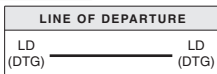
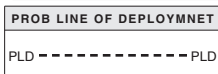
POINTS



MANEUVERS



LINES



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PATENTS PENDING

31

OTHER

PATENT No. 7,056,860

M I R, INC.

FIRE SUPPORT COORDINATION MEASURES

FIRE AREAS

FREE FIRE

FFA
(est HQ)
DTG eff

NO FIRE

NFA
(est HQ)
DTG eff

RESTRICTIVE FIRE

RFA
(est HQ)
RESTRICTIONS

FIRE LINES

FIRE SUPPORT COORDINATION LINE

FSCL (est HQ) FSCL (est HQ)
DTG eff DTG eff

RESTRICTIVE FIRE LINE

RFL (est HQ) RFL (est HQ)
DTG eff DTG eff

COORDINATED FIRE LINE

CFL (est HQ) CFL (est HQ)
DTG eff DTG eff

TARGETS

CIRCULAR

AB1001

RECTANGULAR

AB1001

LINEAR

AB1001

POINT

AB1001

TARGET GROUP

A1B

AB1001 AB1003

AB1002 AB1004

TARGET SERIES

AB1006

A1B

AB1001 AB1003

AB1002 AB1004

AB1005

MADDIE

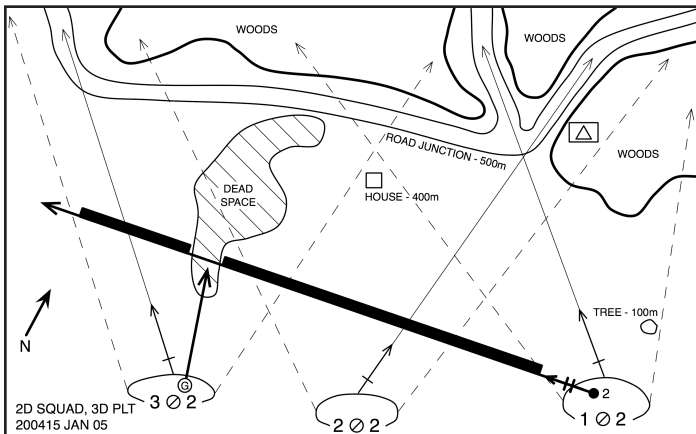
AIRSPACE COORDINATION AREA

ACA (est HQ)
MIN ALT / MAX ALT (IN FEET)
DTG eff

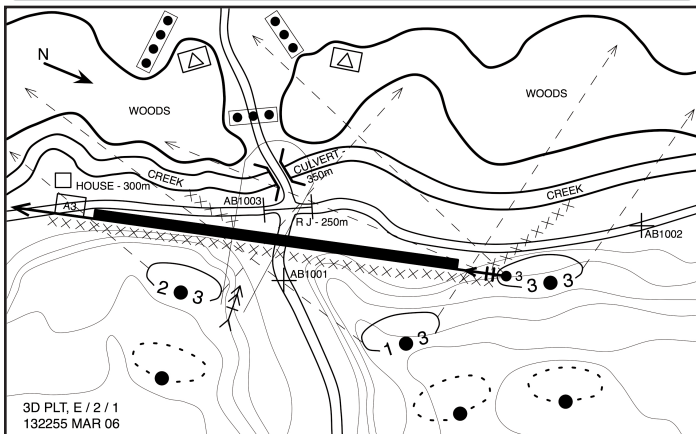
FIRE PLAN SKETCH

1.00

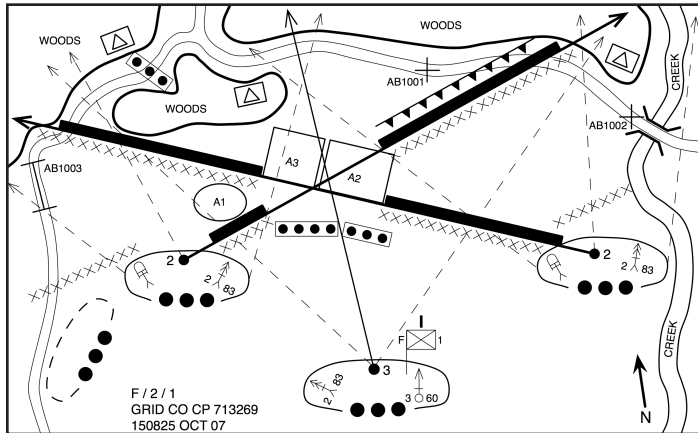
SQUAD



PLATOON



COMPANY



M I R, INC.

PATENT No. 7,056,860

OTHER

PATENTS PENDING

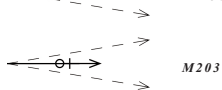
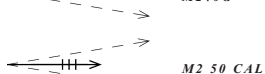
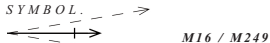
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SYMBOLS

SOF (SECTOR OF FIRE)

SOF: DEFINED BY DASHED LINES ON EITHER SIDE OF WEAPON SYMBOL.



PDF (PRINCIPAL DIRECTION OF FIRE)

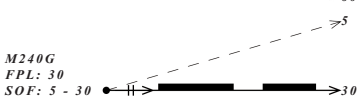
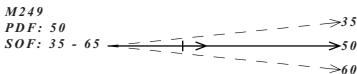


FPL (FINAL PROTECTIVE LINE)

AREA(S) OF GRAZING FIRE



COMBINED FIRE PLAN SYMBOLS

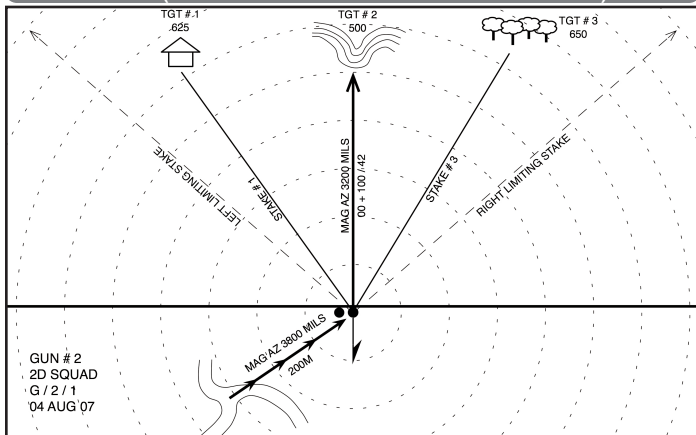


RANGE CARD

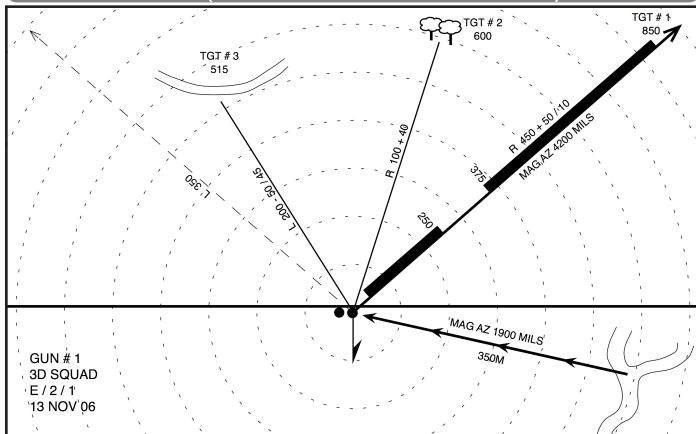
1.00

NOTE: Night Considerations & Distances - optic(s) and laser(s) limitations must be included in PDF & FPL.

PDF (PRINCIPAL DIRECTION OF FIRE)



FPL (FINAL PROTECTIVE LINE)



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2002

PATENTS PENDING LTHV1.00

33

OTHER

PATENT No. 7,056,860

M I R, INC.

STANDARD RANGE CARDSQD

MAY BE USED FOR ALL TYPES OF DIRECT FIRE WEAPONS

PLT CO

MAGNETIC NORTH

DATA SECTION

POSITION IDENTIFICATION: _____ DATE: _____

WEAPON: _____ EACH CIRCLE EQUALS _____ METERS

NUMBER	DIR / DEF	ELEVATION	RANGE	AMMO	DESCRIPTION

REMARKS: _____

PATROL COORDINATION

1.00

S - 2 (I N T E L L I G E N C E)

- | | |
|---|---|
| <input type="checkbox"/> CURRENT ENEMY SITUATION | <input type="checkbox"/> PIRs - Priority Intelligence Requirements |
| <input type="checkbox"/> TERRAIN & VEGETATION | <input type="checkbox"/> OIRs - Operational Intelligence Requirements |
| <input type="checkbox"/> WEATHER & LIGHT DATA | <input type="checkbox"/> SORs - |
| <input type="checkbox"/> PREVIOUS PATROL REPORTS | <input type="checkbox"/> DEBRIEFS - Who, When, Where |
| <input type="checkbox"/> AERIAL PHOTOS | <input type="checkbox"/> SPECIAL EQUIPMENT |
| <input type="checkbox"/> OTHER PHOTOS - Uniforms, Equipment, Etc. | <input type="checkbox"/> SNIPER ATTACHMENT |

S - 3 (O P E R A T I O N S)

- | | |
|--|---|
| <input type="checkbox"/> SUBMIT ROUTE OVERLAY | <input type="checkbox"/> ADJACENT PATROLS |
| <input type="checkbox"/> CHANGES IN FRIENDLY SITUATION | <input type="checkbox"/> RESTRICTIONS - Illumination, Smoke, Etc. |
| DEPARTURE / RE- ENTRY: | <input type="checkbox"/> REQUIRED REPORTS & OCCASIONS |
| <input type="checkbox"/> • TIME & PLACE (COORDINATED W/ FUC) | <input type="checkbox"/> TIME AND LOCATION OF REHEARSAL |
| <input type="checkbox"/> • EMERGENCY SIGNALS | <input type="checkbox"/> TIME AND LOCATION OF TEST FIRE |

S - 4 (L O G I S T I C S) / C O G Y S G T

- | | |
|---|--|
| <input type="checkbox"/> EQUIPMENT REQUEST | <input type="checkbox"/> TIME & LOCATION TO DRAW |
| <input type="checkbox"/> AMMUNITION & PYROTECHNIC REQUEST | <input type="checkbox"/> TRANSPORTATION |
| <input type="checkbox"/> FOOD & WATER REQUEST | |

W E A P O N S P L T / C O

- | | |
|---|--|
| <input type="checkbox"/> ATTACHMENTS AND EQUIPMENT NEEDED | <input type="checkbox"/> DEBRIEFS - Who, When, Where |
| <input type="checkbox"/> FIRE SUPPORT ASSETS | |

F I R E S U P P O R T C O O R D I N A T O R

- | | |
|---|---|
| <input type="checkbox"/> FIRE SUPPORT MEANS AVAILABLE | <input type="checkbox"/> CONTROL MEASURES - CFLs, FSCLs, Etc. |
| <input type="checkbox"/> AMMUNITION / FUZES AVAILABLE | <input type="checkbox"/> FREQUENCY(S) / CALL SIGN(S) |
| <input type="checkbox"/> PRIORITY OF FIRES | <input type="checkbox"/> SUBMIT FIRE SUPPORT OVERLAY |
| <input type="checkbox"/> PRIORITY OF TARGETS | |

C O M M O F F I C E R

- | | |
|--|---|
| <input type="checkbox"/> FREQUENCY(S) / CALL SIGN(S) / TIME(S) | <input type="checkbox"/> REPORTING INSTRUCTIONS |
|--|---|

A I R O F F I C E R FREQUENCY(S) / CALL SIGN(S) ASSETS AVAILABLE**A D J A C E N T P A T R O L S****INFORMATION EXCHANGED:** IDENTITY OF PATROL LEADER ROUTES (PRIMARY / ALTERNATE) IDENTITY OF UNIT MISSION SIZE OF PATROL FREQUENCY(S) / CALL SIGN(S) TIME OF DEPARTURE & TIME OF RETURN CHALLENGE & PASSWORD**F O R W A R D U N I T C O M M A N D E R (F U C)****INFORMATION PROVIDED:** IDENTITY OF PATROL LEADER TIME OF DEPARTURE & TIME OF RETURN IDENTITY OF UNIT GENERAL AREA OF OPERATIONS SIZE OF PATROL PATROL FREQUENCY(S) / CALL SIGN(S) MISSION OF PATROL**INFORMATION COLLECTED:** TERRAIN & VEGETATION FIRE SUPPORT PLAN ENEMY SITUATION UNIT FREQUENCY(S) / CALL SIGN(S) FRIENDLY POSITIONS CHALLENGE & PASSWORD BARRIER PLAN**INFORMATION COORDINATED:** LOCATION OF IRP & RRP FREQUENCY(S) / CALL SIGN(S) LOCATION OF POD / POR FROM FRIENDLY EMERGENCY SIGNALS DEPARTURE / REENTRY PROCEDURES PASSAGE OF INFORMATION TO RELIEF**SUPPORT REQUESTED:** GUIDE (THROUGH FRIENDLY LINES) LITTER TEAM(S) USE OF FIRE SUPPORT ASSETS NAVIGATIONAL AIDS REACTION FORCE

2009



S - 2

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PATENTS PENDING

35

OTHER

PATENT No. 7,056,860

M I R, INC.

S - 3

S - 4 / CO GYSGT

WPNS PLT / CO

L58A

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PATENTS PENDING

36

OTHER

PATENT No. 7,056,860

FIRE SUP COORD

AIR OFFICER

COMM OFFICER

ADJ PATROLS

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INFORMATION GIVEN: _____

INFORMATION REQUESTED: _____

37

INFORMATION COORDINATED: _____

SUPPORT REQUESTED: _____

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PATENTS PENDING

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PATENT No. 7,056,860

M I R, INC.

ROUTE OVERLAY EXAMPLE

Patrol Leader: Sgt Scrivens
Unit: 1st Sqd, 2nd Plt, I 3/2
Date of Patrol: 7 May 1984
Map Sheet: New River **Scale:** 1:50,000
TOD: 1845
TOR: NLT 0230

Patrol Frequencies:

Primary: 33.60
Alternate: 45.70

Code Words:

Switching to ALT FREQ: 'Eagle'
Switching to ALT ROUTE: 'Blue'

Call Sign: N4A

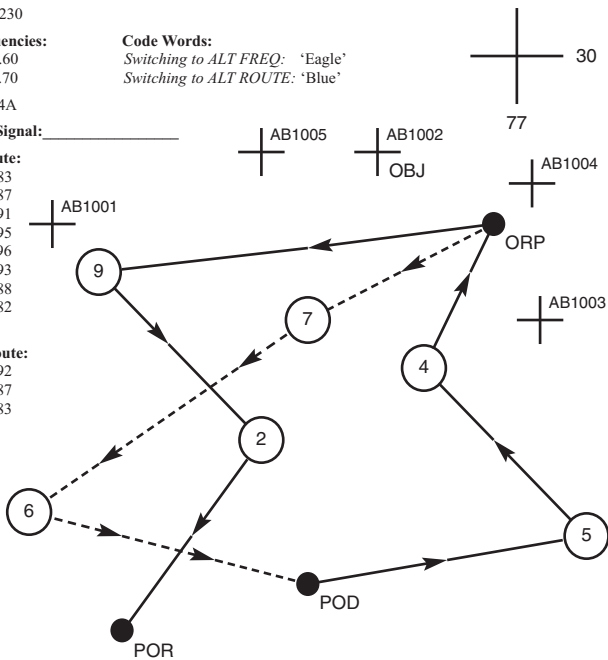
Emergency Signal: _____

Primary Route:

POD: 754 283
CP 5: 757 287
CP 4: 758 291
ORP: 760 295
OBJ: 760 296
CP 9: 753 293
CP 2: 754 288
POR: 752 282

Alternate Route:

CP 7: 756 292
CP 6: 751 287
POR: 754 283



TARGET LIST

NUMBER	LOCATION	DESCRIPT	REMARKS
AB1001	756 290	ROAD JUNCT	HE / WP
AB1002	760 297	ROAD (OBJ)	
AB1003	763 297	ROAD JUNCT	VT
AB1004	758 297	ROAD JUNCT	VT
AB1005	752 293	HILL TOP	HE / WP

PRIMARY ROUTE: _____

ALTERNATE ROUTE: _____

CHECK POINT: _____

PATROL DEBRIEF EXAMPLE

1.00

PATROL RECORDS

Each of the records listed below, are required supplemental elements of the patrol debrief; check-off those that are applicable to the patrol being debriefed, and ensure each item is submitted to the debriefer.

L58A

ENCLOSURES / ATTACHMENTS

- PATROL ORDER
- SKETCH OF OBJECTIVE AREA: PAN FIELD
- MPSIDS LOG; NUMBER OF PHOTOS TAKEN: _____ PHOTOS SENT: _____

PATROL LOGS

- SQUAD / TEAM LEADER OBSERVATION
- PHOTO DATA SHEETS OTHER: _____
- COMM

PATROL REPORT

The report is a combination of outline / bulleted points, and a detailed narrative that addresses all of the listed areas, below. It is critical to provide the maximum level of detail and clarity of information when composing the debrief / answering the debriefer.

38

PATROL ORGANIZATION

The WHO & SIZE of the patrol

MISSION STATEMENT

WHO, WHAT, WHEN, WHERE, WHY

REVIEW OF PIRs

Focus on PIRs - the reason for conducting the mission

PATROL ROUTE NARRATIVE

METHOD: checkpoint to checkpoint, bearing & distance, coordinates

CIVILIAN SIGHTINGS / CONTACT

1. WHERE
2. WHEN
3. HOW
4. NUMBER (race, sex)
5. DESCRIPTION (clothing, etc.)
6. TRIBE / ORGANIZATION, NARRATIVE
7. KEY CONSIDERATIONS: Be aware of changes to normal patterns and / or routine, e.g. - Were traffic patterns the same? Stores open or closed? Mosque crowded / prayers different? Children inside or outside? Schools open or closed? BE OBSERVANT & REPORT ALL DETAILS!

ENEMY SIGHTINGS (SALUTE)

1. SIZE
2. ACTIVITY (*disposition, moral, etc.*)
3. LOCATION
4. UNIT
5. TIME
6. EQUIPMENT (*weapons, clothing, communications, vehicles, etc.*)

ENEMY CONTACT

1. ENEMY CASUALTIES
2. PRISONERS / CROSSOVERS / DEFACTORS
3. DOCUMENTS & MAPS CAPTURED
4. OVERALL IMPRESSION (*physical conditioning / moral / discipline / appearance / etc.*)
5. ENEMY'S REACTIONS TO THE TEAM'S DISCOVERY (*defend, reinforce, attack, withdraw, delay*)
6. FRIENDLY CASUALTIES RESULTING FROM ENEMY CONTACT

ENEMY POSITIONS

1. LOCATION
2. METHOD of DISCOVERY
3. SIZE / SHAPE, NUMBER / TYPE OF BUILDINGS
4. CAMOUFLAGE (*type & effectiveness*)
5. DEFENSES (*weapons / personnel / procedures*)
6. APPROACHES & ESCAPE ROUTES
7. ANTENNAS / COMMUNICATIONS EQUIPMENT (*number / size / type / location*)

ENEMY IMPEDIMENTS

1. IEDs / LOCATIONS
2. TYPE(S) / NUMBER OF IEDs USED
3. NUMBER OF IEDs ENCOUNTERED
4. SIZE & SHAPE OF MINEFIELD (*attach a sketch*)
5. OTHER BOOBY TRAPS / LOCATIONS
6. TOTAL NUMBER OF ENCOUNTERED: BOOBY TRAPS / OBSTACLES / IEDs / ETC.
7. EFFECTIVENESS & DETAILS OF ENCOUNTER

CIVILIAN AFFAIRS GROUP

1. FOOD / WATER / SEWAGE / AGRICULTURAL / ECONOMIC ASSESMENT(S)
2. POINT OF CONTACT
3. GENERAL SITUATION / PROBLEM AREA(S) ENCOUNTERED

GENERAL / ADMINISTRATIVE

1. PROBLEM AREA(S) ENCOUNTERED / TRAINING TO BE INITIATED
2. WAS INTELLIGENCE ACCURATE / INACCURATE? (*were mission folders accurate / recommended improvements*)
3. WERE MAPS ACCURATE / INACCURATE? (*be specific / precise*)
4. WERE AERIAL PHOTOS USED? (*was interception accurate?*)
5. DEFENSES (*weapons / personnel / procedures*)
6. PROVIDE AN ADDITIONAL COMMENTS

ANY ADDITIONAL INFORMATION GATHERED DURING THE PATROL, BUT NOT REQUIRED TO BE PROVIDED IN THE PRECEDING SECTIONS, MUST STILL BE PROVIDED TO THE DEBRIFER.

COMBAT ORDERS FLOWCHART

1.00

HIGHER'S ORDER TO YOU

THE ORDER YOU ISSUE

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PATENTS PENDING

39

OTHER

PATENT No. 7,056,860

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I. SITUATION

- A. Enemy Forces
- B. Friendly Forces
 - 1. Higher
 - a. Mission
 - b. Intent
 - 2. Adjacent
 - 3. Supporting
- C. Attach & Detach

II. MISSION

III. EXECUTION

- A. Commander's Intent
- B. Concept of Operations
 - 1. Scheme of Maneuver
 - 2. Fire Support Plan
- C. Tasks
- D. Coordinating Instructions

IV. ADMIN & LOGISTICS

V. COMMAND & SIGNAL

I. SITUATION

- A. Enemy Forces
- B. Friendly Forces
 - 1. Higher
 - a. Mission
 - b. Intent
 - 2. Adjacent *(can also come from higher adjacent)*
 - 3. Supporting *(can also come from higher tasks)*
- C. Attach & Detach

II. MISSION

III. EXECUTION

- A. Commander's Intent
- B. Concept of Operations
 - 1. Scheme of Maneuver
 - 2. Fire Support Plan
- C. Tasks *(planned concurrently)*
- D. Coordinating Instructions*

IV. ADMIN & LOGISTICS*

V. COMMAND & SIGNAL*



*Based on higher's plus additional information that you need to execute your plan.

PLANNING PROCESS FLOWCHART

1-01

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PATENT No. 7,056,860

OTHER

PATENTS PENDING

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S T E P S

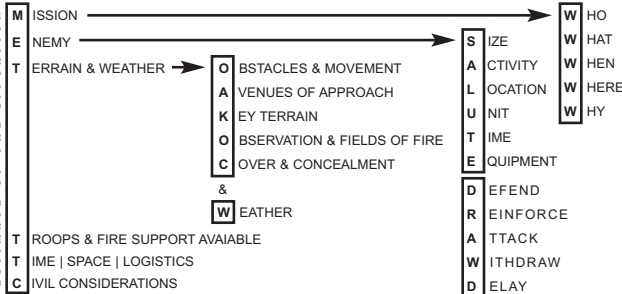
L E A D I N G

T R O O P

BEGIN PLANNING

PLAN USE OF AVAILABLE TIME

ESTIMATE OF THE SITUATION



ISSUE THE WARNING ORDER

ARRANGE

(movement, reconnaissance, issue of the order, coordination)

MAKE RECONNAISSANCE

(update METT-TSLC, develop enemy MPCOA, confirm enemy vulnerabilities)

COMPLETE THE PLAN

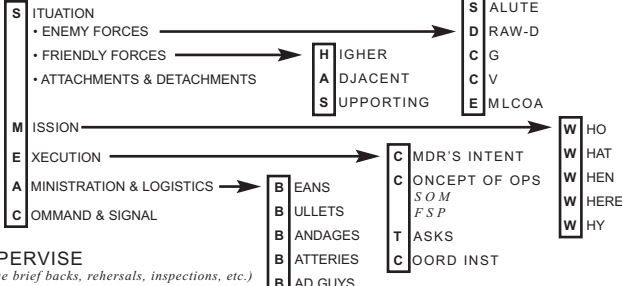
(concept of ops is driven by METT-TC with emphasis on mission, intent & enemy MPCOA, develop SOM to exploit enemy vulnerabilities by placing him in a dilemma)

ISSUE THE ORDER

(address the vantage point, use terrain models / overlays / etc.)

ORIENTATION

PARAGRAPH ORDER



SUPERVISE

(use brief backs, rehearsals, inspections, etc.)

FIVE-PARAGRAPH ORDER

1.01

ORIENTATION

DATE / TIME GROUP _____

LOCATION _____

GC: _____ VEGETATION: _____

GC: _____

GC: _____ TERRAIN: _____

GC: _____

GC: _____

40

FIRE SUPPORT COORDINATION

TARGETS: _____

FIRING LOCATIONS: _____

ARTILLERY: _____

MORTARS: _____

FSCLs: _____

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PATENTS PENDING

OTHER

PATENT No. 7,056,860

M I R, INC.

C O N T R O L M E A S U R E S

W E A T H E R

EXPECT: _____

_____ *FOR THE NEXT:* _____

BMNT / SUNRISE: _____ *EENT / SUNSET:* _____

MOONRISE / SET: _____ *% ILLUMINATION:* _____

TEMPERATURE (HI / LOW): _____

M I R, INC.

PATENT No. 7,056,860

OTHER

PATENTS PENDING

LTHV1.00



2009

SITUATION

ENEMY

COMPOSITION, DISPOSITION & STRENGTH (SALUTE):

CAPABILITIES & LIMITATIONS (DRAW-D):

41

ENEMY - CENTER OF GRAVITY, CRITICAL VULNERABILITY & MOST LIKELY COURSE OF ACTION:

2009



L58A

LTHV1.00

PATENTS PENDING

OTHER

PATENT No. 7,056,860

M I R, INC.

F R I E N D L Y

HIGHER MISSION

TASK & COMMANDER'S INTENT:

ADJACENT (L / R)

UNIT: _____ *UNIT:* _____

LOCATION: _____ *LOCATION:* _____

MISSION: _____ *MISSION:* _____

ADJACENT (F / R)

UNIT: _____ *UNIT:* _____

LOCATION: _____ *LOCATION:* _____

MISSION: _____ *MISSION:* _____

SUPPORTING

UNIT: _____

LOCATION: _____

MISSION: _____

POF: _____

SECURITY

OP(S): _____

LP(S): _____

PATROL(S): _____

ATTACHMENTS & DETACHMENTS**ATTACHMENT(S)**

EFFECTIVE: _____

TYPE: _____

DETACHMENT(S)

EFFECTIVE: _____

TYPE: _____

EXECUTION

COMMANDER'S INTENT

CENTER OF GRAVITY: _____

CRITICAL VULNERABILITY(S): _____

EXPLOITATION OF CV(S): _____

END STATE: _____

CONCEPT OF OPERATIONS

SCHEME OF MANEUVER

2009



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43

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PATENT No. 7,056,860

M I R, INC.

FIRE SUPPORT PLAN

DESCRIPTION: _____

LOCATION(S): _____

TARGET DESIGNATION(S): _____

FREQUENCY(S): _____

T A S K S*SUBORDINATE ELEMENT MISSIONS (MAIN EFFORT, SUPPORTING EFFORT & RESERVE):*

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44

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TASKS (CONT)

SUBORDINATE ELEMENT MISSIONS (MAIN EFFORT, SUPPORTING EFFORT & RESERVE):

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COORDINATING INSTRUCTIONS**ACTIONS***PATROL(P) / OFFENSE(O) / DEFENSE(D):**DANGER AREAS (P & O) / RALLY POINTS (P) / CONTACT (P & O) / DISPLACEMENT (O):*

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45

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PATENT No. 7,056,860

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TIMES

PATROL(P) / OFFENSE(O) / DEFENSE(D):

INSPECTION / REHEARSAL (P & O): _____

ASSEMBLY AREA (P & O): _____

TEST FIRE WEAPONS (P & O): _____

DEPART FRIENDLY LINES (P) / CROSS LINE OF DEPARTURE (O): _____

CROSS FINAL COORDINATION LINE (O): _____

ENROUTE (P) / PHASE LINES (O): _____

TIME OF ATTACK (O): _____

REENTER FRIENDLY LINES (P): _____

REPORTING (P O & D): _____

DEBRIEFING (P): _____

OTHER: _____

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PATENT No. 7,056,860

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REPORTING*PATROL(P) / OFFENSE(O) / DEFENSE(D):*ENEMY ACTIVITY (P, O & D) / ARRIVAL AT CHECK POINTS (P & O) / CROSSING PHASE
LINES (O) / ARRIVAL AT OBJECTIVE (P & O):

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PATENTS PENDING

MOVEMENT*PATROL(P) / OFFENSE(O) / DEFENSE(D):*

ORDER OF MOVEMENT (P & O) / FORMATIONS (P & O):

46

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PATENT No. 7,056,860

MOPP LEVEL 0 NONE 3 PROBABLE 1 SUSPECTED 4 IMMINENT 2 POSSIBLE

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ROUTES

PRIMARY & ALTERNATE (PATROL SPECIFIC COORDINATING INSTRUCTION):

CHECK POINTS (CP) / RALLY POINTS: [POINT OF DEPARTURE (POD), INITIAL RALLY POINT (IRP), RALLY POINT (RP), FINAL PREPARATION POINT (FPP), OBJECTIVE RALLY POINT (ORP), RE-ENTRY RALLY POINT (RRP), POINT OF RE-ENTRY (POR)]:

TYPE	GRID COORDINATE	BREVITY CODE	DIRECTION	DISTANCE

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PATENT NO. 7,056,860

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PRIORITY OF WORK*(DEFENSE SPECIFIC COORDINATING INSTRUCTION):*

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47

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PRIORITY**WORK**

-
- ESTABLISH LOCAL SECURITY (OP / LP) & SPECIFY LEVELS OF ALERT

-
- POSITION AUTOMATIC WEAPONS & ASSIGN SECTORS OF FIRE (SOF) TO INCLUDE FINAL PROTECTIVE LINE (FPL) & PRINCIPLE DIRECTION OF FIRE (PDF)

-
- IDENTIFY & ASSIGN SECTORS OF FIRE (SOF) FOR ALL REMAINING WEAPONS & EMPLACE AIMING STAKES

-
- DESIGN PRIMARY POSITIONS & ENTRENCH

-
- ESTABLISH & REGISTER FINAL PROTECTIVE FIRES (FPF) TO COVER DEAD SPACE (MORTARS & ARTILLERY)

-
- CLEAR FIELDS OF FIRE

-
- PREPARE RANGE CARDS & FIRE PLAN SKETCHES

-
- LAY & BURY COMMUNICATIONS WIRE

-
- EMPLACE OBSTACLES (WIRE / MINES / BOOBY TRAPS)

-
- MARK TARGET REFERENCE POINTS (TRPs) & DIRECT FIRE CONTROL MEASURES

-
- PREPARE ALTERNATE & SUPPLEMENTARY POSITIONS

-
- REHEARSE ENGAGEMENTS

-
- STOCKPILE AMMUNITION / FOOD / WATER

ADMINISTRATION & LOGISTICS

AMMUNITION

PROJECTILE

M16A4 _____ M240G _____

M249 _____ AT-4 _____

M9 _____ SMAW _____

LAW _____ APOBS _____

	TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT
M203 (40MM):						
M2 (.50 MG):						
MK-19 (40MM):						
M224 (60MM):						
M252 (81MM):						

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GRENADE

M67 (FRAG) _____

M7A2 (RC) _____

AN-M14 (INC) _____

M34 (WP) _____

M25A2 (RC) _____

FLASH BANG _____

PYROTECHNICS

WHITE

YELLOW

GREEN

RED

M18 SMK:

--	--	--	--

MK1 ILLUM _____

POPOP (WSC) _____

POPOP (PARA) _____

DEMOLITIONS EQUIPMENT

OPTICS

AN/PQS-18A _____

AN/PVS-17 _____

AN/PEQ-2A _____

AN/PVS-7B _____

ACOG _____

AN/PAS-13 _____

AN/PVS-14 _____

AN/PAQ-4C _____

M145-MGO _____

SPECIAL EQUIPMENT

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48

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RESUPPLY

AMMUNITION: _____

FUEL: _____

FOOD: _____

WATER: _____

PERSONNEL HANDLING

WIA

MEDEVAC PLAN / CASUALTY COLLECTION POINT (CCP):

EPW / DETAINEE

SILENCE / SEARCH / SEGREGATE / SPEED / SAFEGUARD / TAG:

KIA

C O M M A N D & S I G N A L

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IRIDIUM PHONE _____

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MOBILE PHONE _____

F R E Q U E N C I E S & C A L L S I G N S

UNIT	CALL SIGN	FREQUENCY HOP	SINGLE CHANNEL

TIMES TO REPORT _____

MONITOR TAC _____

RADIO SILENCE _____

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 OTHER
 PATENTS PENDING LTHV1.00
 49

B R E V I T Y C O D E S

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OTHER

PATENTS PENDING

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2009

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

DESIGNATES:

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50

VISUAL SIGNALS

HAND & ARM / PYROTECHNIC / IMPROVISED / SPECIAL:

	PRIMARY	ALTERNATE	TERTIARY
COMC			
SHIFT			
CEASE			
DISP			
CONS			
OTHER			
OTHER			
OTHER			

CHALLENGE & PASSWORD

CHALLENGE

PASSWORD

PRIMARY:

ALTERNATE:

RUNNING:

2 #'S
EQUAL:

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COMMAND LOCATION

CRITICAL PERSONNEL DURING MOVEMENT / IN OBJECTIVE AREAS / SPECIAL:

WHO

WHEN

WHERE

COMMAND SUCCESSION

CURRENT CHAIN OF COMMAND & NEXT IN COMMAND:

ANY QUESTIONS?

THE TIME IS NOW :

PCC: VEHICLE CHECKS

FUNCTION

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- | | |
|---|--|
| <input type="checkbox"/> Exterior body damage | <input type="checkbox"/> Power steering fluid level |
| <input type="checkbox"/> Windshield / windows / mirrors cleaned | <input type="checkbox"/> Coolant level |
| <input type="checkbox"/> Doors close and open properly | <input type="checkbox"/> Brake fluid level |
| <input type="checkbox"/> Pintle secured | <input type="checkbox"/> Belts secured, serviceable |
| <input type="checkbox"/> Wheels firmly secured | <input type="checkbox"/> Head / tail lights function |
| <input type="checkbox"/> Battery functioning | <input type="checkbox"/> IR / blackouts function |
| <input type="checkbox"/> Wipers clean, functioning | <input type="checkbox"/> All equipment strapped down and stowed properly |
| <input type="checkbox"/> Brakes function | <input type="checkbox"/> Personal entertainment removed (magazines, music, etc.) |
| <input type="checkbox"/> Transmission fluid level | |
| <input type="checkbox"/> Oil level | |

EQUIPMENT

51

- | | |
|---|---|
| <input type="checkbox"/> Vehicle marked in accordance with theater / operational requirements | <input type="checkbox"/> <i>Per every vehicle (CONTINUED)</i> |
| <input type="checkbox"/> No extraneous markings or decorations | ◇ (2) full water cans |
| <input type="checkbox"/> Per every section (3 to 5 vehicles): | ◇ Bottle of LSA for HMG vehicles, bottle of CLP for other vehicles |
| ◇ Tow bar | ◇ (1) case MREs (additional number mission dependent) |
| ◇ Poleless litter and (4) body bags | ◇ Strip map with mission details for each driver |
| ◇ Pioneer gear | ◇ EOF materials in turret (pen flares, flash bangs, pop-ups, smoke, chemlights) |
| ◇ Breaching kit | ◇ Power amp connected properly |
| ◇ PLGR with extra batteries | ◇ Thermite grenade (when available) |
| <input type="checkbox"/> Per every vehicle: | |
| ◇ Fire extinguisher | |
| ◇ Air panel (if not part of marking system) | |
| ◇ Spare tire (with jack and iron) | |
| ◇ (2) full fuel cans (stored externally) | |

PCC: LEADER CHECKLIST

- Mission statement and commanders intent reviewed
- Timeline reviewed
- Collateral duties assigned (aid / litter, detainee / EPW, breach, etc.)
- Information from leaders recon and S-2 update incorporated into rehearsals
- Danger areas of route reviewed, alternate routes identified
- Map has current friendly positions, and appropriate route information
- Immediate Action drills rehearsed (via rock drills or role playing) to include:
 - ◇ Visual contact/direct fire with enemy
 - ◇ Indirect fire
 - ◇ Obstacles
 - ◇ Aircraft
 - ◇ CBRN attack
 - ◇ Electronic warfare
 - ◇ Sniper fire
 - ◇ IED explosion/discovery
 - ◇ Blocked / unblocked ambush
 - ◇ Crowd control
 - ◇ Foreign / American media
- Frequencies loaded, location of SmartPak disseminated to all Marines
- Radio checks with higher, supporting, and (when appropriate) adjacent units; complete with each radio to include vehicle assets
- CYZ-10 has current fill data and batteries for next changeover
- Signal plan rehearsed
- Medevac rehearsal conducted
- Medical equipment checked:
 - ◇ IV bags have not expired
 - ◇ Squad medic bag complete
 - ◇ Litters function
- Medevac radio format on every Marine
- BZO current, PEQ-2A has been laser bore sighted or LBS confirmed within past week
- ROEs, to include theater specific, reviewed
- NVGs has been focused on eye chart, mounts are secured to the helmet
- Personnel roster and EDL submitted to higher HQs
- Bump plan reviewed (when vehicles apply)
- Lost Marine plan reviewed and discussed in relation to rally points
- Digital camera with empty memory card

PCC: INDIVIDUAL CHECKLIST

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52

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PATENT No. 7,056,860

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- | | |
|---|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> Hygiene / injury and feet inspection <input type="checkbox"/> Uniform clean – cold weather especially <input type="checkbox"/> Fighting Load complete: <ul style="list-style-type: none"> ◇ Kevlar: chin strap tight, glint tape affixed ◇ Body armor: Collar, throat, and groin protected affixed and serviceable ◇ Dog tags worn (x2 neck, x1 left boot) ◇ Military ID card in left breast pocket ◇ Watch ◇ Eye protection worn, clear and shaded lenses on hand ◇ Two quarts of water on hand (CamelBak or canteens) ◇ IFAK complete and secured in accordance with unit SOP ◇ Weapon: cleaned, function tested, lubricated ◇ Optics (thermal, infrared, night vision device, ACOG) secured on weapon ◇ NVGs dummy corded to body ◇ Ammunition: magazines functioning, designated ammunition loaded; crew served ammunition spread loaded and drop off plan rehearsed ◇ Note taking material on hand ◇ Flashlight ◇ Extra batteries for mission (GPS, NVGs, flashlight, radios, optics, and camera) on hand and spread loaded when needed | <ul style="list-style-type: none"> <input type="checkbox"/> Set of flex cuffs on hand <input type="checkbox"/> Spare barrel bag complete <input type="checkbox"/> Assault load complete (per unit SOP) <input type="checkbox"/> Sustainment load complete (per unit SOP) <input type="checkbox"/> Mission specific gear (as required) |
|---|--|

- What is unit mission?
- What is the commander's intent?
- What is your task in this mission?
- What are your collateral duties?
- Show me the route on your map / strip map
- What are the rally points?
- What are indicators of an IED / mine along the route?
- What has been the recent enemy activity in our area to include location and time?
- What are the CCIRs and PIRs for this mission?
- How many personnel are on this mission?
- What is the challenge and password?
- What is the frequency for our unit, the higher unit, and the callsign for who we report to?
- How do we call the QRF?
- What are the ROE and SROE?
- What are the indirect fire targets along our route?
- What is the Lost Marine plan?

PCC: CREW SERVED WEAPONS

MACHINEGUNS

- Function check / serviceability confirmed
- (30) sandbags and (2) range cards per team
- SL-3 complete
- Target precedence, engagement criteria, and rates of fire set
- Head space and timing between 2 and 7 clicks
- Displacement route / method reviewed
- Gas plug setting on 1
- Command relationship, and mission statement of supported unit reviewed
- T&E set on 2-2-2

MORTARS

- One compass per gun, compass orientation confirmed with other bearing device
- Unit callsigns reviewed, SmartPak carried by FDC
- M64 has been bore sighted
- Priority of fires reviewed, priority targets designated
- Function check / serviceability confirmed
- Actions on occupying MFP rehearsed
- SL-3 complete
- Max ordnance set and Safety T built
- Round count reviewed; mortar rounds broken out, spread loaded for transport and allotted per gun
- Command relationship, and mission statement of supported unit reviewed

ASSAULT

- Iron sights set
- Proper number of demolition initiators, to include backups, allotted and carried
- Scope (or 17Bs) bore sighted
- Target precedence assigned
- Function check / serviceability confirmed
- Black blast area reviewed and movement around rehearsed
- Rockets broken out, inspected, spread loaded
- SOPs of supported unit briefed and rehearsed
- Demo kit complete (crimpers, electrical tape, priming adaptors)
- Round count briefed to supported unit leader
- Appropriate demolitions broken out, inspected, prepared for transport during mission
- Command relationship, and mission statement of supported unit reviewed

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53

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SUPPORTING UNIT CHECK-IN SHEET

- Find supported commander
- Bring the following to the order:
 - ◇ Map and map pens
 - ◇ Current EDL and roster (give admin numbers to Platoon Sergeant/First Sergeant)
 - ◇ Writing Gear
- Brief supported commander on the tasking order provided by higher
- Brief weapons type with ammunition count and type
- Brief communications gear and frequencies of supporting unit
- Brief when support starts and ends
- Request the following:
 - ◇ Participation in leader's recon
 - ◇ Frequencies of supported unit and timetable for comm checks
 - ◇ Copy of overlays, control measures, and graphic products generated by supported unit

SUPPORTED UNIT CHECKLIST

- Find supporting unit leader
- Review his tasking statement provided by higher
- Confirm all assets in supporting unit: personnel, weapons and ammunition, comm gear, and any other special equipment (information operations materials, metal detectors, etc.)
- If support ends prior to mission timetable conclusion, resolve problem with higher
- Provide copy of order if possible
- Make a boatspace for a supporting unit representative on any leaders recon conducted
- Review communication nets and signal plan
- Provide a copy of overlays, control measures, and graphic products

VRC-110 WHEN MOUNTED IN A VEHICLE

GENERAL

Frequency Range	30.0000 MHz to 511.9999 MHz
Modes of Operation	Single Channel (VHF / UHF LOS /VULOS) Frequency Hopping (SINGGARS)
Preset Channels	99 programmable presets
Range (UHF / VHF)	Based Upon Line of Sight / Up to 40 km mounted in vehicle
Weight	2.5 LBS

ASSEMBLE & DISASSEMBLE RADIO

The PRC-152 can be assembled in less than 5 minutes. For power, the radio takes 1 rechargeable Lithium-ion battery.

- Attach battery to RT if not already attached.
- Attach either antenna to Antenna connector, antenna selection doesn't matter for SINGGARS mode.
- Radio is now assembled.

NOTE: WHEN INSTALLED IN VEHICLE THE AN/PRC-152 BECOMES A VRC-110. THE PROGRAMMING INSTRUCTIONS ARE THE SAME. THE ONLY CHANGE IS THE POWER OUTPUT IS INCREASED TO 150W INCREASING COMM RANGE.

GENERAL PROGRAMMING INSTRUCTIONS

LOAD SINGLE CHANNEL FREQUENCY

- 1 POWER ON RADIO USING TOP KNOB – TURN ALL THE WAY TO 'F'
- 2 PRESS '8'
- 3 SELECT '**SYSTEM PRESETS**' AND PRESS ENTER.
- 4 SELECT '**SYSTEM PRESET CONFIG**' AND PRESS ENTER
- 5 SELECT CHANNEL NUMBER YOU WANT TO USE, PRESS ENTER
- 6 NAME SPECIFIC NAME OF CHANNEL (I.E. RCT-6 TAC 1 OR 1/7 BN TAC 1, ETC.)
- 7 SELECT PRESET WAVEFORM AS '**SINGGARS**', PRESS ENTER
- 8 SELECT '**SINGLE CHANNEL**' FOR OPMODE, PRESS ENTER

LOADING A SINGLE CHANNEL FREQUENCY INTO THE AN/PRC-152 (CONT.)

- 9 NAME CHANNEL PRESET IF DESIRED (TYPICALLY CALLSIGN), PRESS ENTER
- 10 PRESS ENTER THROUGH NEXT STEPS UNTIL 'SC FREQUENCY, THEN ENTER DESIRED FREQ, PRESS ENTER
- 11 PRESS ENTER UNTIL '**SYSTEM PRESET MENU**', THEN PRESS CLEAR UNTIL RADIO EXITS PROGRAMMING MODE
- 12 USE TO **PRESET + / - KEY** ON THE KEYPAD TO ADJUST CHANNEL NUMBERS

LOAD A NET ID

- 1 PRESS '8'
- 2 SELECT '**SYSTEM PRESETS**' AND PRESS ENTER.
- 3 SELECT '**SYSTEM PRESET CONFIG**' AND PRESS ENTER
- 4 SELECT CHANNEL NUMBER YOU WANT TO USE, PRESS ENTER
- 5 NAME SPECIFIC NAME OF CHANNEL (I.E. RCT-6 TAC 1 OR 1/7 BN TAC 1, ETC.)
- 6 SELECT PRESET WAVEFORM AS '**SINGGARS**', PRESS ENTER
- 7 SELECT '**FREQUENCY HOPPING**' FOR OPMODE, PRESS ENTER
- 8 NAME CHANNEL PRESET IF DESIRED (TYPICALLY CALLSIGN), PRESS ENTER
- 9 SELECT DESIRED TEK – DEPENDS UPON WHERE FILL IS LOADED
- 10 PRESS ENTER UNTIL '**SYSTEM PRESET MENU**', THEN PRESS CLEAR UNTIL RADIO EXITS PROGRAMMING MODE
- 11 ON FRONT PANEL SCREEN, USE RIGHT ARROW KEY TO HIGHLIGHT '**F100**', THEN TYPE IN NETID, PRESS ENTER
- 12 CONDUCT RADIO CHECK

LOAD TIME MANUALLY

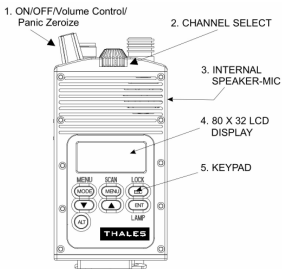
- 1 PRESS '7'
- 2 SELECT '**SINGGARS OPTION**' AND PRESS ENTER.
- 3 SELECT '**SINGGARS GTOD**' AND PRESS ENTER
- 4 SELECT '**USER ENTRY**', PRESS ENTER
- 5 ENTER JULIAN DATE AND ZULU TIME, MUST BE WITHIN +/- 4 SECS
- 6 ONCE TIME IS ENTERED, PRESS CLEAR TO EXIT TO MAIN SCREEN

ZEROIZE AN/PRC-152

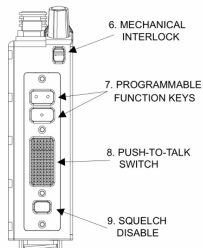
- 1 SWITCH FUNCTION KNOB ON TOP OF RADIO TO 'Z'
- 2 HOLD '**VOLUME UP**' KEY
- 3 DIRECTIONS ALSO PROVIDED ON BACK OF EACH RADIO

GENERAL

Frequency Range	30 MHz to 512 MHz
Modes of Operation	Single Channel (SC) Frequency Hopping (FH), HAVEQUICK, ANDVT
Preset Channels	100
Power Output	0.1, 0.5, 1.0, 3.0, 5.0 watts (all)
Weight	2.2 LBS w/ battery



RADIO - FRONT VIEW



RADIO - PTT SIDE VIEW

GENERAL PROGRAMMING INSTRUCTIONS

LOAD SINGLE CHANNEL FREQUENCY

- 1 POWER ON RADIO USING TOP LEFT KNOB, WAIT FOR SELF TEST TO COMPLETE
- 2 PRESS ALT + MODE (ALT AND MODE AT THE SAME TIME), THEN GO TO **PROGRAM** AND PRESS ENTER.
- 3 SELECT THE **RADIO CONFIGURATION** AND PRESS ENTER.
- 4 USE ARROWS TO MOVE AROUND SCREEN
- 5 ENSURE MODE (NEXT TO CHANNEL NUMBER) IS ON '**PLAIN OR SECURE**' DEPENDING UPON MISSION

LOADING A SINGLE CHANNEL FREQUENCY INTO THE AN/PRC-148 (CONT.)

- 6 SCROLL TO BOTTOM OF FIRST SCREEN AND ENSURE YOU ARE IN 'SINGGARS' MODE
- 7 USE ARROW KEYS TO SCROLL TO FX (FREQUENCY) AND CHANGE THE FREQUENCY BY HIGHLIGHTING THE FREQUENCY AND PRESS ENTER TO LOAD THE FREQUENCY.

LOAD A NET ID (RADIO MUST HAVE CRYPTO)

- 1 PRESS ALT + MODE (ALT AND MODE AT THE SAME TIME), THEN GO TO THE PROGRAM AND PRESS ENTER.
- 2 GO TO THE RADIO CONFIGURATION AND PRESS ENTER.
- 3 ENSURE MODE (NEXT TO CHANNEL NUMBER) IS ON 'SECURE'
- 4 SCROLL TO BOTTOM OF FIRST SCREEN AND ENSURE YOU ARE IN 'SINGGARS' MODE
- 5 SCROLL DOWN ONE MORE TIME TO SINGGAR = AND SELECT A CHANNEL 1-6.
- 6 SCROLL DOWN ONE MORE TIME TO 'ECCM' AND SELECT 'FH'
- 7 SCROLL DOWN THE MENU UNTIL YOU GET TO THE NEXT MENU, THEN SELECT NET ID (SHOULD BE THE FIRST OPTION ON THAT MENU), AND PRESS ENTER
- 8 CHANGE THE NET ID TO THE DESIRED NET ID (A THREE DIGIT NUMBER), PERFORM A RADIO CHECK. "YOU THIS IS ME, RADIO CHECK OVER"

LOAD TIME MANUALLY (ONLY NECESSARY FOR FH)

- 1 PRESS ALT + MODE (ALT AND MODE AT THE SAME TIME), THEN GO TO THE PROGRAM AND PRESS ENTER.
- 2 SCROLL UP TO 'GLOBAL' AND PRESS ENTER.
- 3 SCROLL TO 'SET CLOCK' AND PRESS ENTER
- 4 ENTER JULIAN DATE AND ZULU TIME
- 5 PRESS 'ESC' TO GET BACK TO THE MAIN SCREEN

ZEROIZE AN/PRC-148

- 1 PRESS ALT + MODE (ALT AND MODE AT THE SAME TIME), THEN GO TO THE PROGRAM AND PRESS ENTER.
- 2 SCROLL UP TO 'ZEROIZE', PRESS ENTER
- 3 SELECT 'ZEROIZE COMSEC', PRESS ENTER
- 4 SELECT 'ZEROIZE ALL' , PRESS ENTER
- 5 PRESS ENTER FOR YES TO ZEROIZE ALL COMSEC.

GENERAL

The PRC-119F is a smaller, lighter version of the PRC-119. It has largely the same characteristics as the PRC-119. Many functions are now incorporated into a digital keypad and display.

Frequency Range	30.000 MHz to 87.975 MHz
Modes of Operation	Single Channel (SC), Frequency Hoping (FH), Frequency Hopping Master (FH-M), Retransmission (RXMT), Remote (REM)
Preset Channels	8 Single Channel, 6 Frequency Hop
Power Output	Low (LO): 500 microwatts, Medium (M): 160 milliwatts, High (HI) 4 watts, Power Amplifier (PA) 50 watts
Range	LINE OF SIGHT, up to 5 miles w/o amplifier; up to 22 miles w/ amplifier

ASSEMBLE & DISASSEMBLE RADIO

To assemble the PRC-119F, place battery (BA-5590, BB-590, or BB-390) in the battery box. Attach the Battery and close the latch. Connect the appropriate antenna to the attachment included in the associated SL-3. Connect appropriate antenna assembly to the antenna connector port (a). Connect H-250F handset to the audio/data connector port (e). Note: You may also plug the H-250F Handset into the audio/fill connector port (f).

GENERAL PROGRAMMING INSTRUCTIONS

LOAD SINGLE CHANNEL FREQUENCY

- 1 DO A SELF TEST BY CHANGING THE FUNCTION SELECT SWITCH TO TST (TEST)
- 2 SWITCH FUNCTION SELECT SWITCH TO LD (LOAD)
- 3 PRESS MENU CLEAR AND SET VOLUME TO DESIRED LEVEL (1-9, THE LOUDEST BEING 9)
- 4 SELECT MENU CLEAR UNTIL CHANNEL APPEARS, THEN CHANGE TO DESIRED CHANNELS 1-6 AND 7 BEING THE CUE CHANNEL
- 5 PRESS MENU CLEAR UNTIL POWER APPEARS, THEN PRESS BUTTON NUMBER 7 (CHG) UNTIL DESIRED POWER LEVEL

LOADING A SINGLE CHANNEL FREQUENCY INTO THE AN/PRC-119F (CONT.)

- 6 PRESS MENU CLR UNTIL MODE APPEARS
- 7 RADIO NEEDS TO BE IN SINGLE CHANNEL (SC)
- 8 PRESS MENU CLEAR UNTIL COMSEC APPEARS, PUT IN PT
- 9 PRESS FREQ, THEN CLEAR AND TYPE IN DESIRED FREQ, PRESS STO

LOAD A NET ID

- 1 SET FCTN TO LD
- 2 SET MODE TO FH – PRESS MENU/CLR UNTIL MODE, THEN PRESS BUTTON NUMBER 7 (CHG) UNTIL YOU SEE FH
- 3 SET THE CHANNEL WHICH CONTAINS THE NET ID BEING CHANGED – PRESS MENU/CLR UNTIL CHANNEL APPEARS, THEN USE NUMBER PAD FOR DESIRED CHANNEL
- 4 SET COMSEC TO CT – PRESS MENU/CLR UNTIL COMSEC APPEARS, PRESS BUTTON NUMBER 7 (CHG) UNTIL YOU SEE 'CT'
- 5 PRESS FREQ, THEN CLR ON THE KEYPAD F _ _ _ WILL SHOW ON THE LED
RADIO MUST HAVE CRYPTO
- 6 AT THIS TIME PRESS ANY THREE NUMBERS FROM 001 – 999 THAT YOU WANT TO BE THE NET ID
- 7 PRESS STO AND THE NEW NET ID SHOULD APPEAR IN THE LED

LOAD TIME MANUALLY

- 1 SET FCTN TO LD
- 2 PRESS 'TIME' BUTTON, JULIAN DATE WILL APPEAR
- 3 ENTER JULIAN DATE, PRESS 'TIME', HOUR AND MINUTES WILL APPEAR, PRESS CLEAR
- 4 ENTER HOURS AND MINUTES IN ZULU TIME, COUNTDOWN TIME HACK, ON
- 5 THE MARK, PRESS 'STO'
- 6 CLEAR TO MAIN MENU

ZEROIZE AN/PRC-119F

- 1 SWITCH FUNCTION KNOB ON TOP OF RADIO TO 'Z'

NOTE

- ! Once the radio is programmed, it can be placed in “STANDBY” in order to extend battery life and maintain the data and fill. This is accomplished by turning the function knob to “STBY”.

ACCOUNTABILITY

1.00

PERSONNEL

OFFICER

ENLISTED

OFFICER

ENLISTED

MARINE:

--	--

NAVY:

--	--

WEAPONS

M16A4 _____

AT-4 _____

MK-19 _____

M203 _____

M240G _____

M252 _____

M249 _____

SMAW _____

M2 _____

M9 _____

M224 _____

AMMUNITION

PROJECTILE

M16A4 _____

M240G _____

M249 _____

AT-4 _____

M9 _____

SMAW _____

M203 (40MM):

TYPE	AMOUNT	TYPE	AMOUNT	TYPE	AMOUNT

GRENADE

M67 (FRAG) _____

M7A2 (RC) _____

AN-M14 (INC) _____

M34 (WP) _____

M25A2 (RC) _____

FLASH BANG _____

ACCOUNTABILITY 01

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L58A

LTHV1.00

PATENTS PENDING

57

OTHER

PATENT No. 7,056,860

M I R, INC.

P Y R O T E C H N I C S

WHITE

YELLOW

GREEN

RED

M18 SMK:

--	--	--	--

MK1 ILLUM _____

POPUP (WSC) _____

POPUP (PARA) _____

D E M O L I T I O N S E Q U I P M E N T

O P T I C S

AN/PQS-18A _____

AN/PVS-17 _____

AN/PEQ-2A _____

AN/PVS-7B _____

ACOG _____

AN/PAS-13 _____

AN/PVS-14 _____

AN/PAQ-4C _____

M145-MGO _____

S P E C I A L E Q U I P M E N T

M I S C E L L A N E O U S

M I R, I N C .

P A T E N T N o . 7, 0 5 6, 8 6 0

O T H E R

P A T E N T S P E N D I N G

L T H V 1, 0 0

© 2 0 0 9

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LTHV1.00

PATENTS PENDING

58

OTHER

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PATENTS PENDING

LHV1.00



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