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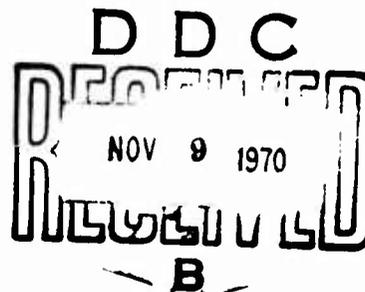
Research By-Product

CRITICAL COMBAT PERFORMANCES,
KNOWLEDGES, AND SKILLS REQUIRED OF THE
INFANTRY RIFLE SQUAD LEADER

Rifle, 5.56mm, M16

by
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December 1968



Technical Advisory Service

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of the Department of the Army.

HumRRO Division No. 4
(Infantry)

The George Washington University
HUMAN RESOURCES RESEARCH OFFICE
operating under contract with
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FOREWORD

In response to a request from the United States Army Infantry School (USAIS), HumRRO Division No. 4 (Infantry) initiated a Technical Advisory Service research project to identify and record the critical combat performances, knowledges, and skills required of the Infantry Rifle Squad Leader and the Infantry Fire Team Leader.

The requirements imposed upon the IRSL and IFTL are essentially the same, except that the former is responsible for the control of the men and fires of both fire teams in a rifle squad, rather than only one. The senior IFTL within each squad must be prepared to assume effective leadership of the squad immediately if the IRSL becomes a casualty, completes a prescribed combat tour, or is absent for any reason. Since it is common practice to provide the same training for candidates for both positions of leadership and to employ the outstanding candidates in the higher position, each paper in this series will set forth the critical requirements imposed upon the IRSL and, therein, those imposed upon the IFTL as well.

Under Work Unit LEAD, Work Sub-Unit I, the critical combat performances, knowledges, and skills of the Infantry Rifle Platoon Leader were published in a series of 41 papers covering a like number of subject areas. Each paper was published with prior review and concurrence by the USAIS Instructional Departments concerned. These papers are being used as the primary source of data in completing a parallel series of papers for the Infantry Rifle Squad Leader and the Infantry Fire Team Leader. This document details the requirements of the rifle, 5.56mm, M16.

This Technical Advisory Service research is being performed at HumRRO Division No. 4 (Infantry), Fort Benning, Georgia. The present Director of Research is Dr. T. O. Jacobs.

Military support for the study is being provided by the U.S. Army Infantry Human Research Unit, Fort Benning, Georgia. LTC Chester I. Christie, Jr. is the present Unit Chief.

HumRRO research is conducted under Army Contract DA 44-188-ARO-2 and under Army Project 2J024701A712 01, Training, Motivation and Leadership Research.

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RIFLE, 5.56mm, M16

General Considerations

Introduction

The rifle, 5.56mm, M16, is an air-cooled, gas-operated, magazine-fed shoulder weapon adopted by the United States Army for use especially in jungle terrain and guerrilla warfare operations. It is characterized by the light weight of both the ammunition and the weapon itself, its adaptability as both an automatic and semiautomatic weapon, its straight-line design which reduces recoil, and the high velocity and flat trajectory of the round. The M16, when utilized by a unit, replaces the M14 and M14A1 as the basic weapon within the rifle squad.*

Scope

This paper covers the critical combat performances, knowledges, and skills required of the IRSL when using and supervising the use of the M16 rifle as an automatic or semiautomatic weapon to include zeroing, firing positions, delivery of fire, rapid reloading, maintenance, immediate action, safety, and destruction. It is assumed that if the IRSL masters the knowledges, skills, and performances required of his subordinates, he can instruct them and supervise their activities to ensure acceptable performance.

Closely related material will be found in Squad Formations, Battle Drill, and Elementary Fire and Maneuver; Patrolling; Technique of Fire of the Rifle Squad; Offensive Operations; Defensive Operations; and Infrared Weaponsight and Image Intensification Devices. Target detection is covered in the paper on Observation, Combat Intelligence, and Reporting.

Material

Rifle, 5.56mm, M16.

M8A1, bipod, M3 w/case.

Twenty-round capacity magazine.

Thirty-round capacity magazine.

Standard ammunition.

Bayonet knife M7 with scabbard.

Kit, cleaning, XM11E2 w/bore brush, chamber brush, and cleaning rod.

* FM 23-9 Rifle 5.56mm, M16A1 covers technical details of mechanical training and marksmanship training. FM 23-71 Rifle Marksmanship contains further details on marksmanship training.

Battlefield Cues

Orders or instructions from commanders requiring the use of the M16.

Known or suspected enemy targets such as personnel, positions, vehicles, or aircraft targets, requiring engagement at ranges up to 460 meters

Recognized need to employ the M16 in automatic fire in short 2-3 round bursts in specific situations, such as initial short-range surprise contact, the engagement of vaguely located personnel targets such as snipers in trees, in the assault, or in the close-in defense.

Limited visibility requiring the use of pointing technique and/or delivery of prearranged grazing fire using the prescribed improvised procedures.

Unserviceable or missing component parts discovered upon inspection.

Failure of the weapon to fire, unlock, extract, eject, cock, feed, chamber, or lock.

Repeated failure to hit targets during zeroing or under combat conditions.

Excessive dust and dirt in the air from ground, or aircraft propellers or rotor blades.

Accidental firing of the M16.

Any unsafe act or condition occurring during firing of the weapon.

Threat of capture of the M16 and accessories.

Performances, Knowledges, and Skills

1. THE IRSL, UPON THE INITIAL ISSUE OF AN M16 RIFLE, WILL INSURE THAT BEFORE ZEROING, IT IS CLEAN, PROPERLY LUBRICATED, COMPLETE AND READY FOR FIRING.

He must : ensure that essential cleaning materials are on hand to include: cleaning rod, chamber brush, bore brush, properly sized rifle patches, oil, and solvent cleaning compound, together with these recommended additions: artists' brush (if available) or toothbrush, and shaving brush for hard-to-get-at areas. 1

: clear the weapon, using this procedure: 2

a. Place selector lever on SAFE. (If weapon is not cocked, selector lever will not move to SAFE. If this is the case, do not cock the weapon but go to the next step.)

b. Remove the magazine.

c. Lock the bolt open.

d. Visually inspect the receiver and chamber.

e. Ensure that selector lever is on SAFE and close the bolt.

: field-strip the weapon, replacing missing, broken or worn parts, and correcting any improper assembly of parts. 3

: clean, lubricate, and reassemble the weapon. (See Performance 8, following, for detail on care and cleaning.) 4

2. THE IRSL WILL OBTAIN A 250-METER BATTLESIGHT ZERO FOR HIS WEAPON AT THE FIRST OPPORTUNITY AFTER HIS WEAPON IS SAFE FOR FIRING, BY USE OF THE 25-METER METHOD.

He will : when zeroing his weapon, fire from the bipod supported prone or the bipod supported foxhole positions to obtain maximum accuracy. 5

- : when initially zeroing his weapon, center the rear windage sight using the short-range aperture; using the front sight post, set the elevation 24 clicks from the lowest point; maintain this setting until a change, based upon acceptably tight shot groups, appears required. 6
- : know that determination of a valid battlesight zero is based upon 3 or 4 series of acceptably sized 3-round shot groups appropriately placed on the target in relation to the aiming point, and that once determined, no further adjustment of the sights is required. 7
- He must : adjust rear windage and front elevation by depressing the respective spring-loaded studs and turning in the desired direction. 8
- : know that each click of either windage or elevation moves the strike of the round .7 centimeters (slightly more than 1/4 inch) on a target at 25 meters, and 7.5 centimeters (about 3 inches) on a target at 250 meters. 9
- : know that at 25 meters the strike of the round should be 2.4 centimeters (about 15/16 inch) directly below the point of aim to obtain a zero for 250 meters. 10
- : know that to obtain the distance in centimeters that one click will move the bullet strike at any given range, the range in hundred of meters is multiplied by three (thus at 250 meters, one click in either elevation or windage will move the strike 7.5 centimeters [2.5 x 3] on a vertical target intercept). 11
- : know that, as a result of the high muzzle velocity and flat trajectory of the M16 round, the vertical variation in the strike of the round with a weapon zeroed at 250 meters will be within 2 inches of the point of aim at ranges from 0 to 200 meters, and within 4 inches below the point of aim at ranges from 250 to 300 meters. 12
- : know that, at ranges greater than 300 meters, the long-range aperture of the rear sight must be used to raise the trajectory of the round for accurate engagement of targets up to 460 meters. 13

3. THE IRSL WILL, AT RANGES UP TO APPROXIMATELY 350 METERS, UNDER TIME PRESSURE VARYING FROM GREAT TO NONE, ENGAGE AND SUPERVISE ENGAGEMENT OF TARGETS SUCH AS OBSERVED STATIONARY, MOVING, SINGLE AND MULTIPLE PERSONNEL AND SUSPECTED ENEMY POSITIONS, FROM GROUND FIRING POSITIONS, OR FROM AIR AND SURFACE VEHICLES. HE WILL COMMENCE AND TERMINATE FIRE AS THE SITUATION DEMANDS OR ON ORDER.

He must : know these characteristics of the M16 in order to control his fire and that of his men effectively: 14

- a. Maximum range is 2,600 meters.
- b. Maximum effective range is 460 meters.
- c. Maximum sustained rate of fire is 12 to 15 rounds per minute, and any higher rate of either semiautomatic or automatic fire may be fired only for short periods without overheating the barrel.

: know that an adjusted aiming point, which is the adjustment of the sight picture to hit the point of aim at ranges other than that for which the weapon is zeroed or to allow for variation right or left due to the wind velocity, is not necessary with the M16 rifle if the weapon is zeroed at 250 meters and the target is within 300 meters since the variation in trajectory is within 4 inches and the high velocity of the round prevents significant lateral movement due to the wind. 15

: know that when the long-range aperture is utilized at ranges from 300 to 460 meters, an adjusted aiming point will not be needed for elevation adjustments but, depending on the wind velocity, may be needed for windage adjustments. 16

: know that automatic fire from an unsupported position is much less accurate than semiautomatic fire (in terms of hits per rounds expended), except at extremely short ranges, and that promiscuous automatic fire will usually merely create resupply problems without materially increasing the number of casualties inflicted. 17

: require that all riflemen use pointing or aimed semiautomatic fire, except for those individuals designated as automatic riflemen. 18

- : know that hostile personnel moving within rifle range will normally avoid lateral movement and will often move by short, full speed, 3-4 second rushes. 19
- : know that such moving targets can often be better engaged by marking the point where a rush ends and engaging the target either while it is stationary or as it rises to rush. 20
- He will : except when time pressure, target proximity and/or insufficient light prohibit use of sights (require pointing fire), aim his zeroed weapon: 21
- a. at the center of mass of a fully visible stationary human target at short ranges, e.g., when the range is 15 meters or less when using automatic fire, and 50-75 meters or less when using semi-automatic fire.
 - b. at the center of visible mass of a fully visible stationary human target at ranges beyond 250 meters.
 - c. as low on the target as a clear aiming point can be obtained for partially covered or concealed stationary targets.
- : know that in combat or in field firing, particularly in limited visibility, the tendency is to fire high, especially by inexperienced firers. 22
- : when engaging a target moving directly toward or away from him, use as an aiming point the same aiming point that would be used for a stationary target; when engaging such a target between 250 and 460 meters, select the same aiming point using the long-range aperture. 23
- : when engaging laterally moving targets, select as an adjusted aiming point: 24
- a. the forward edge of the body of a slowly walking man within 200 meters.
 - b. a point one body width in front of a running man within 200 meters.
 - c. a point one body width in front of a slowly walking man beyond 200 meters.
 - d. a point two body widths in front of a running man beyond 200 meters.

- He will : when firing at time-pressure targets at ranges over 35 meters, utilize the shoulder position with sights and semiautomatic fire to achieve maximum accuracy with speed, when time pressures permit. 25
- : when firing at time-pressure targets at ranges over 35 meters, and time does not permit use of sights, use the shoulder position with pointing, semiautomatic fire or with pointing, automatic fire held deliberately low and to the left center of the target. 26
- : when firing at targets with little or no time pressure, assume the most stable position, i.e., standing, kneeling, squatting, sitting, prone, or modifications thereof, that the situation allows; utilize available cover and concealment; aim, using the sights of the weapon; and fire a single shot or rapid succession of semiautomatic shots as required to destroy or neutralize each target. 27
- : when firing from the unsupported standing or kneeling position, time and situation permitting, use the hasty sling position to stabilize the weapon and increase accuracy. 28
- : when firing from the standing, sitting, squatting, kneeling, or prone positions, use available stable objects such as trees, buildings and rocks to achieve a suitable supported position, especially at targets at medium range and beyond, when factors such as time, surprise and/or cover permit, in order to increase stability and accuracy as well as to improve firer concealment and cover. 29
- : use the squatting position on slopes unfavorable for other positions, as well as in wet jungle terrain to avoid contaminated spots and wet, muddy ground, as well as to provide observation over thick brush or grass while affording greater concealment than from the standing or kneeling position. 30
- : when firing from moving vehicles or aircraft, assume a stable, supported firing position; anticipate, if possible, movements of the vehicle or aircraft which would inhibit accuracy; ensure the intended line of fire is clear of approaching friendly forces; and ensure that the muzzle of the weapon is clear of the vehicle to prevent possible damage. 31

4. THE IRSL WILL, AT RANGES UP TO APPROXIMATELY 35 METERS AND UNDER EXTREME TIME PRESSURE, ENGAGE AND SUPERVISE ENGAGEMENT OF SUDDENLY APPEARING, CLOSE-IN TARGETS, INCLUDING STATIONARY, MOVING, SINGLE- AND MULTIPLE-LOCATED PERSONNEL ON THE GROUND, AS WELL AS SUSPECTED ENEMY POSITIONS, AND WILL SUPERVISE DELIVERY OF ASSAULT FIRE BY HIS SQUAD. HE WILL COMMENCE AND TERMINATE FIRE AS DEMANDED BY THE SITUATION OR ON ORDER.

He must : realize that to engage targets under extreme time pressure, three weapon firing positions are feasible: 32

- a. underarm;
- b. shoulder without using sights;
- c. shoulder using sights;

and that other positions require excessive time to assume and/or result in the delivery of significantly less accurate fire.

: determine his own capabilities and limitations by firing the M16 rifle from each of these three positions at close, and presumably dangerous, targets, demonstrating to himself the advantages and disadvantages of each. 33

; know that the underarm position is the quickest to assume and fire from, but is the least accurate of the three, especially as range increases beyond 15-25 meters. 34

: realize that the use of the underarm position magnifies the tendency of inexperienced riflemen to fire high, especially when firing automatic. 35

: when using the underarm position, deliberately aim low, especially when firing automatic, and allow the weapon's recoil to raise the point of aim through the target, recognizing that short rounds are not wasted in that they can become lethal ricochets and can also produce damaging secondary projectiles. 36

. know that pointing fire delivered from the shoulder position, although slower than that from the underarm position, is more accurate, and that use of the shoulder position reduces the firer's tendency to fire high. 37

: when using the shoulder position for pointing, automatic fire, deliberately aim low and slightly to the left, e.g., the left knee of a standing man, of targets beyond approximately 25 meters. 38

- : know that the shoulder position utilizing the sights is the slowest to assume, especially because of the rear peep sight of the M16, but will provide the most accurate fire, especially at ranges between 15 and 35 meters, and beyond. 39
- : when time is available for use of sights against close-in targets, aim for and fire at the center of visible mass, e.g., the chest of a man in an erect position above ground, or the bottom center of assumed penetrable mass, e.g., the base of a shrub or thin tree behind which an enemy has concealed himself in an assumed prone position. 40
- : know that under extreme danger from short-range surprise fire, or when encountering close-in surprise targets, sufficient prior training must have been given to produce as an automatic reaction one of the following: 41
- a. Fire from the standing position while dropping to prone.
 - b. Drop to prone before firing.
 - c. Fire from standing position depending for protection upon the effectiveness of fire.
5. THE IRSL WILL, AT RANGES UP TO APPROXIMATELY 460 METERS, WHEN THE SITUATION DEMANDS UTILIZING THE M16 ON AUTOMATIC AND FIRING IN SHORT BURSTS, ENGAGE AND SUPERVISE ENGAGEMENT OF TARGETS SUCH AS STATIONARY, MOVING, SINGLE- AND MULTIPLE-LOCATED PERSONNEL ON THE GROUND OR IN THE AIR, AIRCRAFT, VEHICLES, OR IN SUSPECTED ENEMY POSITIONS. HE WILL COMMENCE AND TERMINATE FIRE AS DEMANDED BY THE SITUATION OR ON ORDER.
- He must : ensure that only certain designated individuals per squad are permitted to fire their weapons regularly on automatic, and know that failure to appoint specific individuals will usually result in a majority using long bursts of automatic fire with resultant reduced accuracy, wasted ammunition, and possible damage to the weapon. 42
- : know that additional individuals may be required to use automatic fire at short range for brief critical periods to gain fire superiority, or when assaulting enemy positions where the resultant round dispersion of automatic fire can be accepted against obscure linear or area type targets. 43

- : when firing the M16 on full automatic at longer ranges, utilize either the prone or foxhole supported positions with bipod, since recoil will make other positions unstable and reduce accuracy. 44
- : when firing on automatic, maintain a firm position and fire in short two- to three-round bursts because recoil from longer bursts will cause the weapon to rise further, thus causing high firing and reducing accuracy. 45
- : when engaging multiple enemy personnel employing automatic fire, distribute fire over the entire target with sufficient overlap to cover both flanks of known or suspected enemy formations or positions. 46
6. THE IRSL WILL, DURING LIMITED VISIBILITY, AT RANGES OUT TO THE LIMITS OF VISIBILITY AND UNDER VARYING TIME PRESSURES, ENGAGE AND SUPERVISE ENGAGEMENT OF TARGETS OF ALL TYPES, INCLUDING STATIONARY, MOVING, SINGLE- AND MULTIPLE-LOCATED OR SUSPECTED ENEMY PERSONNEL, USING POINTING FIRE, COMMENCING AND TERMINATING FIRE AS THE SITUATION DEMANDS OR ON ORDER.
- He must : when firing during limited visibility, use pointing techniques from the shoulder position, looking directly at the target over the muzzle and sights with both eyes open to ensure alignment with the target. 47
- : know that accuracy may be increased by placing luminous material on the backs of the front and rear sight facing the firer to aid in properly aligning the weapon with the target. 48
- : know that under conditions of limited visibility, the tendency to fire high will increase since a firer is unable to utilize his sights, necessitating that a significant depression of the muzzle be made deliberately once the firer decides the proper alignment has been achieved. 49
- : realize that under conditions of limited visibility the average rifleman normally has sufficient time after he has spotted a target to bring his weapon up and fire, using the pointing technique, before the image begins to fade. 50
- He will : in organizing a defensive position, the situation permitting, ensure that preplanned individual grazing fires are organized covering dangerous approaches and areas where existence of level or uniformly sloping terrain favor delivery of such prearranged fires, utilizing: 51

- a. Improvised direction stakes marking the direction of specific point targets and the lateral limits within which terrain permits delivery of effective grazing fire.
- b. A combination of bipod and a rearward expedient means such as a notched or tree crotch stake for point targets and a horizontal board or log for a sector of grazing fire.
- c. When firing, the rifle within the rests, the butt firmly supported by the firer's shoulder with the weapon held in the exact position in which it was held when sighted in.
- d. Verified sighting in, when the situation permits, using ranging fire to check both direction and achievement of optimum graze effect.

: know that the use of tracer ammunition creates psychological fear in the enemy while increasing illumination upon a target and thus aiding the firer in determining accuracy, since the round will illuminate the area it strikes. 52

: know that the firing of tracer ammunition will not expose the firer's position beyond the normal disclosure created by muzzle blast since tracer ignites 35 to 70 meters in front of the muzzle, has a deceiving arcing effect, and normally is not distinguishable by the target as a tracer while traveling toward that target. 53

7. THE IRSL WILL, UNDER TIME PRESSURE DURING ALL CONDITIONS OF VISIBILITY, LOAD AND UNLOAD HIS WEAPON WITHOUT OBSERVING THE PROCEDURE AND WITH A MINIMUM OF BETRAYING MOVEMENT, MAINTAINING SURVEILLANCE TO HIS FRONT FOR ENEMY MOVEMENT.

He must : consider, prior to entry into action, loading tracer rounds as the bottom (first) three rounds of each magazine to furnish warning during firing that the magazine is nearly empty and that a reload will be necessary. 54

: load the weapon deliberately with a firm, sure motion, preferably from a bolt open position, avoiding the forceful slamming of a magazine into the magazine feedway which may bend retaining clips and cause magazines to fail to seat properly. (If the magazine fails to seat, it can then be seated by a sharp rap on the magazine base with the heel of the hand.) 55

- : know that the standard M14 magazine pouch has the capacity to carry five M16 magazines (four in the pocket and one horizontally across the top), and that rapid reloading is facilitated when only four are carried (three in the pocket and one across the top). 56
 - : place vertically positioned magazines top down in the ammunition pouch to facilitate rapid reloading, to protect the ammunition from dirt, and to permit water to drain readily under unfavorable conditions such as stream crossings. 57
 - : know that ball ammunition for the M16 is available in bandoliers, that eight 20-round magazines can be carried in a bandolier, and that bandoliers so loaded are handy to carry and easier to use from any firing position. 58
8. THE IRSL WILL PROPERLY MAINTAIN HIS M16 RIFLE AND SUPERVISE THE MAINTENANCE OF THE RIFLES OF HIS MEN AT ALL TIMES TO INCLUDE PROTECTION FROM UNFRIENDLY ENVIRONMENTS, ASSEMBLY AND DISASSEMBLY, CLEANING, PROCURING REPLACEMENT OF UNSERVICEABLE PARTS, AND PROCURING AND CARRYING PROPER TOOLS FOR CLEANING AND MAINTENANCE.
- He will
- : protect weapons and ammunition receptacles when air assaulting into sandy areas where rotor blast fills the air with abrasive dust and sand, by covering them individually with a light plastic sheet or other suitable material, unless prohibited by the command concerned. 59
 - : periodically inspect the muzzle and flash suppressor of his weapon to ensure that they are not blocked with mud, leaves, or debris, a common occurrence which, if undetected, may result in inaccurate fire or cause a serious explosion. 60
 - : know that a field expedient for preventing blockage of the muzzle and flash suppressor of the weapon by mud, leaves, etc., is to cover the muzzle with a green handkerchief or plastic bag. 61
 - : protect the weapon from immersion, from rain, or from any other source of water that might result in filling of the barrel. 62
 - : when the weapon has inadvertently been exposed to water that may have entered the barrel, drain the barrel before firing by: 63
 - a. Pointing the barrel downward and pulling rearward on the charging handle to unseat the chambered round and allow the water to drain out.

- b. Allow the charging handle to go forward when the water has drained out, and strike the forward assist to ensure the round is seated and the bolt locked.
- : inspect his ammunition and magazines for dirt, dust, and corrosion at least daily; ensure that magazines are not oiled so as to pick up dust and dirt; and clean or replace ammunition which has become dirty, corroded, bent, or otherwise appears to be unserviceable. 64
- : protect magazines and extra ammunition carried in cardboard cartons by wrapping each in a lightweight plastic cover, such as the one in which radio batteries are issued, to secure against weather, mud and water, though keeping at least two magazines unwrapped for immediate use. (Dirty, rusty magazines constitute a major malfunction hazard which is often overlooked.) 65
- : ensure that neither he nor members of his unit tape two or three magazines together and insert them in the weapon, because the added weight will bend the magazine, weaken the magazine follower, and expose the additional magazines and rounds to dust, dirt, and corrosion. 66
- He must : personally carry and ensure that his men carry the proper tools for cleaning and maintaining the M16 rifle, to include cleaning rod, bore brush, chamber brush, patches, together with recommended additional gear such as an artist's brush (if available) or toothbrush, a clean, dry cloth, a shaving brush for cleaning use, bore cleaner and an approved lubricant (LSA for temperatures above 0°F). 67
- : know the procedures for replacement of unserviceable parts and ensure that available replacement parts are serviceable and located for easy exchange. 68
- : inspect his unit periodically to ensure serviceability and replacement of unserviceable hand guards, slings, and magazines. 69
- : know that the individual soldier is authorized to field strip the weapon without supervision and that such disassembly is adequate for normal maintenance. 70
- : know that the frequency of disassembly and assembly should be the minimum consistent with proper maintenance and instructional requirements. 71

- : clean his weapon at least daily, more often if possible when in the field, and as soon after firing as the situation allows, using bore cleaner and an approved lubricant (LSA only in temperatures higher than 0°F).

72
- : know that particular attention must be given bolt face and extractor, firing pin, bolt carrier key, chamber, bore, and trigger housing, since these key areas most affect the firing cycle and will cause the most frequent stoppages if dirt and carbon are allowed to build up.

73
- : know that an emergency field expedient, but only when combat action prevents proper disassembly and cleaning, consists of injection of generous quantities of LSA into the ejection port onto all moving parts accessible through that port.

74
- : know that use of this field expedient must be followed at the earliest possible time by proper disassembly and cleaning of the weapon.

75
- : field strip the weapon preparatory to cleaning and lubrication.

76
- : know that M14 bore brush and patches may be used in the absence of authorized gear, but that care must be taken to trim or wear down the bore brush and that patches must be cut into quarters.

77
- : clean bore with solvent, M16 bore brush, patches, and cleaning rod, or with suitable substitutes, to ensure that loose dirt, obstructions, and built-up carbon are removed.

78
- : utilize the cleaning rod properly, by inserting it through the chamber of the weapon, and withdrawing it through the muzzle, never reversing the direction of movement of the brush while the brush is in the bore.

79
- : exercise care in the use of the cleaning rod, especially when utilizing an M14 bore brush, by holding it with two hands, one on the middle and one at the end, to prevent bending the rod.

80
- : employ extreme care when using a cleaning rod without a swivel handle, allowing it to rotate as it goes through the bore following the rifling grooves, since failure to do so may strip the connector threads or cause the rod to loosen or come apart in the bore.

81

- : clean chamber, locking lugs, locking recess and exterior of gas tube in receiver with solvent and M16 chamber brush or any adequate substitute such as a .45 caliber bore brush, M60 or M14 bore brush, toothbrush, pipe cleaner, etc.

82
- : after cleaning, dry thoroughly with patches preparatory to oiling.

83
- : apply a light coat of oil, using a swab moistened with authorized lubricant, to the bolt and chamber, locking lugs, locking recess, and exterior of gas tube to reduce carbon fouling and facilitate feeding and extraction of the cartridge.

84
- : clean all parts of the bolt carrier group, paying particular attention to firing pin and bolt carrier key, with a swab dipped in solvent, or a bore brush as necessary, e.g., for the bolt carrier key, and dry.

85
- : visually check extractor for chipped or broken edges in the area of the lip that engages the cartridge rim.

86
- : test extractor spring strength by pressing on extractor with finger, and replace spring if found weak.

87
- : lubricate extractor and extractor spring lightly with oil, by using a patch, swab, or pipe cleaner dipped in oil.

88
- : apply one drop of oil to each hole on the right side of the bolt carrier and the open end of the bolt carrier key.

89
- : apply a light coat of oil to exterior surfaces of the bolt, and a generous coat to the external surfaces of the bolt carrier, to resist corrosion and facilitate subsequent cleaning.

90
- : ensure that excess oil is not allowed to enter the firing pin recess of the bolt, which could decrease the energy of the firing pin sufficiently to cause a failure to fire.

91
- : apply a generous coat of oil to the interior surfaces of the upper receiver.

92

- : brush out the lower receiver group with dry patch or bristle brush and ensure that any build-up of dirt which might interfere with the action of the hammer, sear, or selector switch has been removed. 93
- : generously lubricate the interior surfaces and parts of the lower receiver, particularly the selector lever shaft, pins, and cams, to prevent "freezing." 94
- : lightly oil the action spring, action spring guide, and inside of lower receiver extension. 95
- : lightly oil all exterior surfaces, including those under the hand guards. 96
- : know that correctly oiling the M16 rifle is extremely important, as some areas require generous oiling while others function better with very little oil or none at all and may even malfunction if too much oil is applied. 97
- : know that oiling parts which do not move during the firing cycle must be limited to preventing rust, and that dust and dirt will collect on any heavily oiled surface much faster than one that is free of excess oil. 98
- : reassemble the weapon and perform function checks to assure proper operation. 99
- : disassemble magazines as required for cleaning. 100
- : know that magazines are aluminum and thus bend or dent easily. 101
- : protect magazines from blows or stresses likely to cause damage, inspect magazines regularly for such damage, and turn in for replacement any damaged magazine or one in which the spring has become separated from the follower. 102
- : clean magazine components and ammunition carefully. 103
- : apply a light coat of oil to the spring only, never to the rest of the magazine or the ammunition, and reassemble the magazine. 104

9. THE IRSL WILL APPLY IMMEDIATE ACTION TO REDUCE STOPPAGES DURING FIRING; WHEN IMMEDIATE ACTION FAILS TO REMEDY THE CAUSE OF THIS STOPPAGE, TAKE ACTION TO DETERMINE THE CAUSE AND REDUCE THE STOPPAGE.

- He must** : know that stoppages in critical situations can cause loss of life and that most stoppages can be prevented with proper maintenance procedures, periodic inspection, and adequate supervision. 105
- : know that the steps of immediate action are: 106
- a. Strike the forward assist assembly to ensure that the extractor has engaged the round. Tap upward on the bottom of the magazine to ensure it is fully seated. Pull the charging handle fully to the rear. Observe for ejection of a complete cartridge or cartridge case.
 - b. If a cartridge or case is ejected, release the charging handle to feed a new round (do not ride the charging handle forward). Strike the forward assist assembly to assure bolt closure. Attempt to fire the weapon. If the weapon fails to fire, it must be inspected to determine the cause of malfunction and appropriate action taken.
 - c. If a cartridge or cartridge case is not ejected, check for a round in the chamber. If the chamber is clear, release the charging handle to feed a round, strike the forward assist assembly, and attempt to fire. If the weapon still fails to fire, it must be inspected to determine the cause of malfunction and appropriate action taken.
 - d. If a cartridge or case is noted in the chamber, it must be removed before attempting to reload and recycle the weapon.
- : know that the most frequent failures of the M16 rifle are failure to feed, failure to fire, and failure to extract. 107
- : when the weapon fails to feed, realize that one or more of these conditions may exist: 108
- a. The magazine may be overloaded (load only 20 or 30 rounds in 20- or 30-round magazines, respectively, to prevent this type of stoppage).
 - b. The magazine may be dirty or loaded improperly.
 - c. The magazine may be unserviceable.

: when his weapon fails to feed, lock the bolt to the rear; remove the magazine; check for dirt; push the top rounds down to ensure it is not overloaded; slap magazine into the palm of the hand to ensure rounds are properly seated; then reload the weapon and attempt to resume firing. 109

: when his weapon fails to fire, realize that one or more of these conditions may exist: 110

- a. the ammunition may be defective;
- b. there may be excessive carbon on the firing pin;
- c. the bolt may be assembled improperly.

: when his weapon fails to fire after the application of immediate action, pull the bolt to the rear with the charging handle a second time, let it go forward, and again attempt to fire (failure to fire a second time eliminates faulty ammunition as the cause); again pull the bolt to the rear, wipe off the tip of the firing pin, let bolt go forward, and attempt to fire (failure to fire a third time indicates a fault in the bolt assembly or firing pin and will require field stripping). 111

: when his weapon fails to extract, realize that one or more of these conditions exist: 112

- a. the chamber is dirty and, due to the tightness of the fit of the round in the chamber, the extractor cannot pull it out;
- b. the ammunition was dirty or corroded;
- c. if it was the first round, it may have been in the chamber too long following a previous firing allowing it to expand with the temperature;
- d. the extractor or extractor spring may be unserviceable.

: when the tactical situation permits, allow the weapon to cool with an empty chamber after firing to prevent expansion of the casing metal which in turn, may cause difficulty in extraction of that round at a later time. 113

- : when the weapon fails to extract, lock the bolt to the rear; remove the magazine; insert his cleaning rod (which should be taped to the weapon for a situation such as this) through the muzzle and force the round from the chamber; check the chamber and ammunition for dirt; check the extractor for dirt, nicks, carbon, and/or trapped pieces of metal from the cartridge rim; then reload and attempt to resume firing. (Further failure to extract after inspecting for dirt or corrosion usually indicates an unserviceable extractor requiring maintenance by an armorer.) 114
- : know that attempting to remove an unextracted round with the bare hand is difficult, if not impossible, and, if immediately after firing, will result in burns from the hot cartridge case. 115
- : obtain another weapon from a casualty if, during the application of immediate action, a broken or defective part such as a firing pin, extractor part, ejector part, bolt cam pin, or bolt carrier group part is discovered. 116
- : keep the dust cover, which is designed to prevent dirt and dust getting into the rifle, closed at all times when not firing. (It will open automatically during either forward or rearward movement of the bolt.) 117
- : during operations in extreme cold involving wear of arctic mittens or other cumbersome handgear, insert a cartridge nose into the spring loaded retaining pin of the trigger guard and move the guard to a position which affords free access to the trigger. (During operations under these conditions, the safety should be kept on except when actually about to fire.) 118
10. THE IRSL WILL ESTABLISH AND ENFORCE SAFETY PROCEDURES TO PREVENT ACCIDENTAL FIRING OF THE M16 WHICH MAY RESULT IN CASUALTIES TO FRIENDLY PERSONNEL OR LOSS OF SURPRISE.
- He must : ensure that weapons are cleared (empty chamber) except when otherwise specified by unit SOP, e.g., in contact, moving to contact, contact is imminent, manning security position, or test firing weapons in an authorized area. 119
- : keep selector levers on safety position at all times except when the necessity to deliver fire without delay is imminent. (See unit SOP.) 120

: when sudden encounters with the enemy at close range, as in jungle fighting, are probable, carry the M16 with the barrel upward pointed in a safe direction and grasping the pistol grip with the firing hand so that the index finger is on the trigger and the thumb is on the safety lever in the safe position. (This position provides for quick fire when required, does not sacrifice safety, prevents brush or branches from accidentally turning the selector lever without the firer's knowledge, and reduces danger of accidental discharge in case the firer trips, in that both the thumb and trigger finger would have to slip simultaneously.)

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11. THE IRSL WILL, ON ORDER OR AS DEMANDED BY THE SITUATION, REQUIRE AND SUPERVISE THE DESTRUCTION OF RIFLES TO PREVENT CAPTURE.

He must : know that the priority for destruction is:

122

- a. Breech mechanisms.
- b. Barrel.
- c. Sights.
- d. Mounts.

: know that various methods of destruction are available, including using:

123

- a. Mechanical - denting, breaking or bending using a heavy piece of equipment such as an axe, pick mattock, sledge, crowbar or other implement.
- b. Burning - incendiary grenade, gasoline, oil or other flammable.
- c. Gunfire - rifle, machinegun, grenades or artillery.
- d. Disposal - burying, dumping in streams or marshes, scattering widely to preclude recovery of essential parts.

: know that the essential requirement is to prevent the enemy from utilizing any part of the destroyed rifle as a replacement part for another, or as a weapon itself, i.e., as a boobytrap, to include the magazines and ammunition.

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