CRM LESSON PLAN REPORT

PERFORM MAINTENANCE ON THE MACHINE GUN CALIBER 50 M2A1 WITH FIXED HEADSPACE AND TIMING
101-92Y10D09 / 05.0 ©

Approved
06 Sep 2016

Effective Date: 06 Sep 2016

SCOPE:

None

SECTION I. ADMINISTRATIVE DATA

All Course Masters/POIs Including This Lesson

Courses

Course Number	Version	Title	Phase	Status
551-92Y10	05.0	Unit Supply Specialist	N/A	Analysis

POIs

POI Number	Version	Title	Phase	Status
551-92Y10	05.0 ©	Unit Supply Specialist	0	Analysis

Task(s) Taught(*) or Supported

Task Number	Task Title	Status
Individual		
101-92Y-1409 (*)	Perform Organizational (Unit) Maintenance on Small Arms	Approved

Reinforced Task(s)

Task Number	Task Title	Status
101-92Y-1301	Control Weapons and Ammunition in the Arms Room	Approved

Knowledge

Knowledge Id	Title	Taught	Required
None			

Skill

Skill Id	Title	Taught	Required
None			

Administrative/ Academic Hours

The administrative/academic (50 min) hours required to teach this lesson are as follows:

Academic	Resident Hours / Methods		
Yes	1 hr	10 mins	Hardware-Oriented Test
Yes	4 hrs	35 mins	Demonstration
Yes	0 hrs	15 mins	Reflective Discussion
Yes	1 hr	10 mins	Practical Exercise (Hands-On/Written)
Yes	0 hrs	30 mins	Discussion (Small or Large Group)
Total Hours(50 min):	8 hrs	0 mins	

Instructor Action Hours

The instructor action (60 min) hours required to teach this lesson are as follows:

Hours/Actions		
0 hrs	15 mins	Classroom Breakdown
0 hrs	15 mins	Classroom Setup
1 hrs	0 mins	Logistics Support – Weapon
0 hrs	25 mins	Student Counseling
1 hrs	0 mins	Student Re-test
0 hrs	25 mins	Student Re-train
Total Hours (60 min):	3 hrs	20 mins

Test Lesson(s)

Hours	Lesson Number Version	Lesson Title
None		

Prerequisite Lesson(s)

Hours	Lesson Number Version	Lesson Title
None		

Training Material Classification

Security Level: This course/lesson will present information that has a Security Classification of: U - Unclassified.

Foreign Disclosure Restrictions

FD1. This training product has been reviewed by the training developers in coordination with the Fort Lee, Virginia foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

References

Number	Title	Date
AR 25-400-2	THE ARMY RECORDS INFORMATION MANAGEMENT SYSTEM (ARIMS)	02 Oct 2007
DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual	22 Aug 2005
TM 9-1005-347-10	Operator's Manual for Machine Gun, Caliber .50; M2A1, with Fixed Headspace and Timing (1005-01-511-1250)	08 Apr 2011
TM 9-1005-347-23&P	Chine Gun, Caliber .50: M2A1 w/Fixed Headspace and Timing, NSN 1005-01-511-1250 (EIC 4AZ)	29 Jul 2011

Student Study Assignment

None

Instructor Requirements

Primary Instructor and Assistant Instructor(s)

Support Personnel Requirements

Armorer

Computer System Analyst

Additional Support Personnel Requirements

Name	Student Ratio	Qty	Man Hours
Armorer	0:0	1	1.0
Computer System Analyst	0:0	1	8.0

Equipment Required for Instruction

ID - Name	Student Ratio	Instructor Ratio	Spt	Qty	Exp
1005-00-322-9716 - Mount, Tripod, Machine Gun, .50 Caliber: M3	1:6	0:0	No	1	No
1005-01-511-1250 - Machine Gun, Caliber .50: M2 Series with M3 Tripod and M63 Mount	1:1	0:0	No	1	No
5180-00-357-7770 - Tool Kit, Repairman's, Small Arms	1:10	0:0	No	1	No
7021-01-C14-3190 - Computer, Micro Lap-Top Portable AC: M4500 Dell	0:0	0:0	No	2	No
7021-01-D01-0269 - PC Tablet, Data Entry: IPAD 2 WIFI 64GB Apple	1:1	0:0	No	1	No
7025-01-C11-4208 - Printer, Daisy Wheel/Dot Matrix/:2335DN MFP Dell	0:0	0:0	No	1	No
7050-01-C14-4309 - Interactive Pen Display: ID422W Smart	0:0	0:0	No	1	No
7490-01-T00-0291 - Card Programmer: RFC-03G Turning Technologies	1:1	0:0	No	0	No
7490-01-T00-0292 - Card Programmer: XRC-R02 Turning Technologies	1:30	0:0	No	0	No

(Note: Asterisk before ID indicates a TADSS.)

Materials Required

Instructor Materials:

a. Lesson Plan.

b. Practical Exercise (PE)

c. Practical Exercise Solution.

d. Required Publications.

Student Materials:

a. Student Handout (Blank Forms)

b. Practical Exercise (PE)

c. Required Publications.

d. Pen or pencil.

e. Safety Glasses (Eye Protection)

Classroom, Training Area, and Range Requirements

ID - Name	Quantity	Student Ratio	Setup Mins	Cleanup Mins
17135-3000 Laboratory Instructional Building, 3000 Square Foot		1:30	20	30

Ammunition Requirements

DODIC - Name	Exp	Student Ratio	Instruct Ratio	Spt Qty
A560 - Dummy Cartridge, Caliber .50, M2 (Not Linked)	N	5:1	5:1	

Instructional Guidance/ Conduct of Lesson

NOTE: Before presenting this lesson, instructors must thoroughly prepare by studying this lesson and identified reference material.

NOTE: Instructor/Facilitator will ensure to incorporate ALM2015 and OE experiences.

ARMY LEARNING MODEL

All Instructors/Facilitators will facilitate training under Army Learning Model. Ensuring training is based on quality, relevance and effectiveness of face-to-face learning experiences through outcome-oriented instructional strategies. This type of instruction will foster critical thinking, initiative and operational relevance in context.

OE INTEGRATION

Instructors/Facilitators will facilitate conversations from students and relate this lesson to current Operational Environments (OE) using personal experiences and/or examples obtained from the Center for Army Lessons Learned (CALL). Instructors should provide sufficient OE variables and scenarios to produce the desired soldier training outcome for this lesson.

NOTE: Verify that the training material is loaded in the computers before beginning the lesson.

Proponent Lesson Plan Approvals

Name	Rank	Position	Date
romulo.santos	Not available	Approver	06 Sep 2016

SECTION II. INTRODUCTION

Method of Instruction: Discussion (Small or Large Group)
Mode of Delivery: Resident Instruction
Instr Type (I:S Ratio): Military - ICH, (1:30)
Time of Instruction: 15 mins

Motivator

INSTRUCTOR NOTE: Have students draw the M2A1 Machine Gun from the armsroom.

SLIDE 92Y10D09-1 (ON)

Introduce the Perform Field Maintenance on the Machine Gun, Caliber .50: M2A1 W/Fixed Headspace and Timing to the students.

The Commander has designated you as his or her Unit Armorer, responsible for the unit maintenance of small arms. As a Unit Armorer, you will prepare, maintain, submit, and file all maintenance requirements for the unit's organizational weapons. You must have the skill set and the ability to perform all unit maintenance tasks. The Unit Armorer is an important job and requires attention to detail. If the M2A1 Machine Gun is not maintained to required standards, the weapon may not operate, unit readiness will be degraded, and your unit may not be prepared to perform its mission.

SLIDE 92Y10D09-1 (OFF)
SLIDE 92Y10D09-2 (ON)

INSTRUCTOR NOTE: Review the lesson Terminal Learning Objective with the students.

SLIDE 92Y10D09-2 (OFF)

Terminal Learning Objective

NOTE. Inform the students of the following Terminal Learning Objective requirements.
At the completion of this lesson, you [the student] will:

Action:	Perform Preventive Maintenance on the Machine Gun, Caliber .50, M2A1.
Conditions:	In a classroom environment, given the requirement to perform preventive maintenance on the M2A1 Machine Gun. Given TM 9-1005-347-10, TM 9-1005-347-23&P, DA Pam 750-8, a DA Form 5988-E, a DA Form 5990-E, armorer toolkit, safety equipment, and a M2A1 Machine Gun.
Standards:	The student will perform preventive maintenance on the M2A1 Machine Gun in accordance with TM 9-1005-347-23&P and DA Pam 750-8, finding all deficiencies without losing accountability.
Learning Domain - Level:	None assigned

No JPME Learning Areas Supported:	None

Safety Requirements

General classroom, weapon, and electrical safety procedures will be followed.

Before starting and/or performing any maintenance procedures, be sure to clear the weapon. During the clearing procedure always keep the weapon pointed in a safe direction.

A potential safety hazard exists if the weapon is assembled or disassembled incorrectly. Do not attempt to disassemble or assemble this weapon until the Instructor tells you to do so.

Students will ensure that safety glasses are worn at all times during the assembly and disassembly of the weapon.

Risk Assessment Level

Low - Eye Hazard

Assessment: Caused by mishandled springs

Controls: Ensure springs are properly handled and eye protection is worn.

Leader Actions: Supervise and ensure guidance is followed by the students.

Environmental Considerations

NOTE: Instructor should conduct a risk assessment to include environmental considerations IAW the current environmental considerations publication, and ensure students are briefed on hazards and control measures..

NOTE: It is the responsibility of all Soldiers, DA Civilians, and Contractors to protect the environment from damage.

NOTE: Have dirty rags turned in to the supply room and cleaned on a weekly basis.

Instructional Lead-in

Explain to the Soldier that performing field maintenance on small arms is similar to performing maintenance on a car. It is important to keep your car in good running condition so you can get back and forth to work. In the U.S. Army, weapons must be maintained to specified standards so the unit can successfully perform its mission.

SECTION III. PRESENTATION

TLO - LSA 1. Learning Step / Activity TLO - LSA 1. Identify the Characteristics, Capabilities and Features, and Major Components of the M2A1 Machine Gun.

Method of Instruction:	Discussion (Small or Large Group)
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	15 mins
Media Type:	Actual Equipment / PowerPoint Presentation
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-10, WP 0001 00-1.

PROJECTION UNIT: Instructor can use overhead projector to display appropriate TM pages as they are discussed.

a. Purpose of Equipment. To provide automatic weapon suppression fire for offensive and defensive purposes. This weapon can be used effectively against personnel, light armored vehicles, and low flying/slow flying aircraft. The caliber .50, M2A1, is installed on mounts of several different types of combat vehicles and ships.

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-10, WP 0002 00-2

b. Location and Description of Major Components.

1) The M2A1 Machine Gun (Flex Type) is composed of the following:
   a) Front and Rear Sights
   b) Barrel
   c) Receiver
   d) Retracting Slide Handle
   e) Trigger/Trigger Block
2) M2A1 Unique Components.
   a) Barrel Assembly
   b) Barrel Extension Assembly
   c) Barrel Support
   d) Barrel Cap
   e) Barrel Carrying Handle Assembly
   f) Trigger Block, Small Arms Safety
   g) Sear Stop and Pin
   h) Trigger Block, Shoulder Screw
   i) Trigger Block, Flat Spring
   j) Breech Lock Pin
   k) Breech Lock (Set of Six)
   l) Spring Pin
   m) Timing Lock Screw

n) Headless Shoulder Pin

o) Knurled Plain Nut

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-23&P, WP 0002 00-1.

c. Equipment Characteristics, Capabilities, and Features.

1) The M2A1, caliber .50, Flexible Barrel Machine Gun is a link-belt fed, recoil-operated, air-cooled, crew-served machine gun. The machine gun is capable of firing single-shot and automatic; is capable of right-hand or left-hand feed. It is used as a ground gun mounted on M3 tripod mount, MK 26 MOD 0-14, MK 64 mount, and MK93 mount or is installed on M66 ring mount of several types of combat vehicles.

2) The M2A1, caliber .50, w/Fixed Headspace and Timing Machine Gun, operates in the same manner as the standard .50 caliber machine gun. However, it offers added features, which include fixed headspace and timing, quick change barrel, and backplate trigger block.

3) All major components of the .50 Cal. M2A1 are interoperable. The Barrel Extension Assembly and Bolt have been serialized to remain together as an assembly. If a new Barrel Extension of Bolt is required, servicing the headspace and timing will be necessary. If any parts of the Barrel Extension or Bolt is interchanged, headspace and timing must be reset.

NOTE: Do not attempt to remove the Breech Lock from the Barrel Extension. It is not intended for the Breech Lock to be removed during cleaning. Pinning the Breech Lock insures that the assigned Breech Lock/Barrel Extension combination is maintained, thus insuring proper headspace.

4) The M3 tripod mount is a portable, folding mount which permits a high degree of accuracy and control of fire.

5) The MK93 mount is a universal machine gun mount for ground deployment.

6) MK64/MK93 MOD 1 is a component assembly designed as a defensive ground mount for the MK19 MOD 3 and M2 HB machine guns onto the HMMWV ring assembly. It is composed of MK93 MOD 2 machine gun mount, .50 caliber ammo holder assembly, mounting bracket, catch bag assembly, universal pintle adapter (UPA), and traverse and elevation mechanism (T&E).

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-23&P, WP 0003 00-1/2

d. Principles of Operation.

1) Barrel Assembly. Composed of barrel and barrel carrier assembly. Barrel carrier assembly permits quick removal or installation of barrel and is secured to locking and retaining grooves or barrel.

2) The trigger block is located at the top of the backplate assembly.

WARNING: During reassembly, the bolt and barrel extension serial numbers must match the last four digits of the receiver serial number to maintain headspace, and prevent gun malfunctions and serious injury.

3) Barrel Extension Assembly. recoiling groups/parts of the weapon are locked

completely together during recoil for 0.75 in. (1.91 cm) after firing. during recoil, the barrel extension assembly causes tips of the accelerator to rotate rearward. Located in the forward area inside the receiver assembly. The M2A1 barrel extension includes a breech lock specifically fitted to maintain the M2A1 fixed headspace. If any parts of barrel extension or bolt is interchanged, headspace and timing must be reset.

4) Flash Suppressor. reduces muzzle flash when firing. Installed on the muzzle end of the barrel.

5) Barrel Support Alignment and Retention Slots. correctly align and secure the M2A1 quick change barrel.

6) Interrupted Threads. Allow for M2A1 quick barrel changes without prolonged operator exposure.

7) Barrel Lock Pin. Mates with the alignment and retention slots to properly position the M2A1 quick change barrel.

8) Fixed Timing Lock Screw and Adjustment Nut. Provides fixed timing in conjunction with eh M2A1 quick change barrel and fixed headspace.

9) Barrel Cap. Placed on Barrel for protection and when using BFA.

Check on Learning: Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.

Review Summary: Conduct a Review/Summary of the information presented in the Learning Step.

TLO - LSA 2. Learning Step / Activity TLO - LSA 2. Unload and Clear the M2A1 Machine Gun.

Method of Instruction:	Demonstration
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	10 mins
Media Type:	Actual Equipment / PowerPoint Presentation
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-10, WP 0010 00-1

a. Place trigger block on S (safe).

b. Unlock the bolt latch release.

c. Raise the cover.

d. Lift the cartridge extractor and remove the ammunition belt from the feedway.

e. Place cartridge extractor down and close the cover.

WARNING: Round may fall to surface and possibly explode.

f. Pull and lock the bolt to the rear, leaving the retracting slide handle to the rear. Open the cover.

WARNING: Chamber may be hot. Use caution while inspecting T-slot.

g. Visually inspect the chamber and T-slot for rounds (in darkness the gunner must feel

the chamber and T-slot to ensure they are clear).

h. Press the bolt latch release and ease the bolt forward with retracting slide handle.

i. Close the cover.

j. Press the trigger.

Check on Learning:	Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.
Review Summary:	Conduct a Review/Summary of the information presented in the Learning Step.

TLO - LSA 3. Learning Step / Activity TLO - LSA 3. Disassemble and Troubleshoot the M2A1 Machine Gun.

Method of Instruction:	Demonstration
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	1 hr 30 mins
Media Type:	Actual Equipment / PowerPoint Presentation
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

a. Field Strip the M2A1 Machine Gun.

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-10, WP 0022 00-1

WARNING: To avoid accidental firing, remove ammunition, clear weapon, and verify that chamber is clear.

WARNING: Heat protective mitten should be used when barrel is hot to avoid injury to personnel.

1) After ensuring weapon has been cleared, retract the retracting slide handle approximately 3/8 inch.

2) Rotate barrel counterclockwise until barrel lock pin engages barrel support camming slot. Continue rotating the barrel using barrel carrying handle (the handle is now pointed upward) until the barrel lock pin engages alignment slot.

3) The barrel is now unlocked from barrel extension. Pull barrel forward and remove from receiver.

4) Press release knob and remove barrel carrying handle from barrel assembly.

WARNING: Injury to personnel could occur if the following are not followed:

-Never remove the backplate assembly from any weapon until the chamber has been cleared.

-Do not attempt to remove backplate unless the bolt is in the forward position.

-Do not attempt to charge weapon without backplate assembled to the machine gun. Stand to one side when removing backplate.

CAUTION: Care must be taken to prevent the bolt from slamming forward with the barrel removed.

5) Release charging handle and allow bolt and retracting slide to go forward.

6) Ensure weapon is in single shot mode and bolt is in forward position. Pull backplate latch lock straight back, while lifting up on backplate latch. Raise backplate assembly straight up and remove from receiver.

WARNING: Never attempt to cock the machine gun with the backplate removed and the driving spring rod assembly in place. If the backplate is off and the driving spring rod assembly is compressed, the retaining pin on the driving spring rod assembly could slip from its seat in the sideplate and could cause serious injuries to anyone behind the machine gun.

NOTE: The driving spring rod is located at the sideplate.

7) Push in on head of driving spring rod assembly and push it to the left to remove retaining pin from its seat in the receiver right sideplate.

8) Pull driving spring rod assembly to the rear of and out of the receiver.

9) Retract bolt assembly far enough t align bolt stud with (enlarged) bolt stud hole in receiver. Remove bolt stud.

10) Slide bolt to the rear and out of receiver. To keep extractor from falling from bolt, place bolt down on its far right side.

11) Rotate cartridge extractor upward and remove from left side of bolt. Remove bolt switch by lifting straight up from bolt.

12) Place cocking lever in its rearmost position.

WARNING: Do not place finger between cocking lever and sear or injury could occur.

13) Release firing pin spring by pressing down on sear with swab holder section.

14) Using swab holder section, remove cocking lever pin and cocking lever.

15) Using thin edge of cocking lever, rotate sear stop to center of recess and bolt.

16) Turn bolt over and use thin edge of cocking lever to press sear stop and pin from bottom of bolt.

17) With top of bolt up, use thin edge of cocking lever to pry up and remove sear stop and pin.

18) Depress sear and remove sear slide. Remove sear and sear spring.

19) Tip the front end of the bolt upward and remove firing pin extension assembly.

20) Remove firing pin from firing pin extension assembly.

21) Insert pointed end of M4 cleaning rod into hole in receiver and depress buffer body lock while applying rearward pressure on barrel extension assembly.

22) Remove barrel buffer assembly and barrel extension assembly together. Separate the assemblies by pushing forward on tips of buffer accelerator.

23) Remove buffer assembly by pushing it out rear of barrel buffer body. Drive accelerator pin assembly from barrel buffer body with swab holder. Remove buffer accelerator.

NOTE: The breechlock is pinned to the barrel extension and not removable at operator level. No further disassembly of barrel extension is authorized.

24) Remove belt holding pawl pin and lock pin attaching front cartridge stop and rear cartridge stop assembly to receiver. Remove front cartridge stop and rear cartridge stop assembly.

NOTE: Hold down on belt holding pawl assembly to prevent loss of springs.

25) Remove bolt holding pawl pin, lock pin, belt holding pawl assembly and two springs.

26) Raise loop of trigger lever pin and rotate pin until loop is in vertical position. Reach inside receiver and hold trigger lever while removing trigger lever pin assembly. Remove trigger bar.

b. Troubleshoot the M2A1 Machine Gun.

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-23&P, WP 0004 00-1. Review the Troubleshooting Index with the students. Pick a symptom from Symptom Index; Walk students through the troubleshooting process.

Check on Learning:	Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.
Review Summary:	Conduct a Review/Summary of the information presented in the Learning Step.

TLO - LSA 4. Learning Step / Activity TLO - LSA 4. Reassemble the M2A1 Machine Gun.

Method of Instruction:	Demonstration
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	1 hr
Media Type:	Actual Equipment / PowerPoint Presentation
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-10, WP 0032 00-1

WARNING: During reassembly, the bolt and barrel extension serial numbers must match the last four digits of the receiver serial number to maintain headspace, and prevent gun malfunctions and serious injury.

a. Install Trigger Lever

1) Install trigger lever bar in receiver.

NOTE: Ensure trigger lever bar is aligned directly under timing nut.

2) Align hole in trigger lever bar with mounting hole in receiver.

3) Place trigger lever pin assembly, loop end vertical, in assembly hole on left side plate of receiver.

4) Match key on trigger lever pin assembly with keyway in side plate of receiver and install pin completely.

5) Rotate trigger lever pin assembly 90 degrees to lock securely in place, and fold

down out of the way.

6) Check that trigger lever bar moves freely.

NOTE: Determine direction of feed before proceeding.

b. Install Receiver Assembly.

1) Place right hand rear cartridge stop assembly and front cartridge stop on belt holding pawl bracket with lock pin.

2) Install belt holding pawl pin with hooked end to rear.

3) Seat belt holding pawl springs in place on belt holding pawl brackets.

4) Place belt holding pawl assembly on belt holding pawl springs. compress springs and insert belt holding pawl pin. Ensure springs are in recesses in belt holding pawl bracket.

c. Install Barrel Buffer Assembly

1) Place buffer accelerator (tips up) into barrel buffer body, aligning mounting holes. Install barrel buffer pin assembly. Ensure both ends of the barrel buffer pin assembly are flush with the sides of the barrel buffer body.

2) Align key on barrel buffer assembly with key slot in barrel buffer body. Ensure engaging notch is facing up and slide barrel buffer assembly into barrel buffer body.

3) Hold barrel buffer assembly with buffer accelerator up slightly above breech lock depressors and engage notch on shank of barrel extension assembly with cross groove in piston rod of barrel buffer assembly.

4) Align breech lock depressors in grooves of barrel extension assembly and push barrel buffer assembly forward.

d. Install Bolt Assembly

1) Attach firing pin to firing pin extension assembly.

2) Place firing pin extension assembly into bolt with notch of firing pin extension assembly down.

3) Slide firing pin extension assembly forward so that tip of firing pin protrudes from face of bolt.

4) Place sear spring in recess on bolt. Ensure sear spring is installed correctly. Use cocking lever to assist in installing sear spring.

5) Slide sear down into vertical grooves at rear of bolt with wedge-shaped lug pointed outward and upward.

NOTE: Ensure that sear and sear spring engage properly. Sear also has a recess for sear spring.

6) Compress sear spring by pressing down on sear. Install sear slide from left side of bolt in grooves of bolt with V notch down.

7) Install sear stop and pin into center recess of bolt.

8) Using wedge shaped end of cocking lever as a tool, press down on the flat end of the sear stop and pin and swing it into groove on left side of the bolt.

9) Insert cocking lever, with rounded nose on lower end of lever to rear, into slot in top of bolt.

10) Align hole in cocking lever with holes in the bolt. Insert cocking lever pin from left side.

11) Push cocking lever forward to charge firing pin. return cocking lever to rearward position.

WARNING: Do not attempt to release the firing pin with cocking lever forward. The cocking lever could spring back forcibly and cause serious injury to the hand.

WARNING: Do not place finger between cocking lever and sear.

12) Trip firing pin by depressing top of sear with a swab holder section.

NOTE: A sharp metallic sound indicates firing pin spring is in good condition.

CAUTION: Failure to perform the following step will result in a jammed weapon.

13) Place cocking lever in forward position after testing firing pin release. Ensure this step is followed or weapon will be jammed.

NOTE: Determine direction of feed before installing bolt switch left or right.

14) Place bolt switch in position so that the feed groove is continuous for feed direction selected.

15) Hold cartridge extractor in vertical position. Insert shank end of cartridge extractor into left side of bolt.

NOTE: Ensure cartridge extractor fits into bolt as far as possible.

16) Rotate cartridge extractor downward to full horizontal position.

17) Check that flange on bottom of cartridge extractor has engaged shoulder on bolt.

WARNING: During reassembly ensure that the last four digits of the barrel extension assembly serial number matches the last four digits of the bolt serial number to prevent losing headspace, which could cause gun to malfunction and serious injury to personnel.

CAUTION: When installing bolt assembly, do not trip buffer accelerator.

NOTE: Ensure cocking lever is forward before installing bolt assembly into receiver.

18) Align rails of bolt assembly with grooves in barrel extension.

19) Ensuring cocking lever is positioned forward, install bolt assembly into barrel extension and buffer assembly, then install into the receiver.

20) Raise bolt latch and push bolt assembly into receiver.

21) Align hole in bolt assembly with stud assembly hole in receiver and install bolt stud in hole in bolt assembly.

NOTE: The bolt stud is installed in the bolt on the right side of the receiver for the flex.

22) Place bolt in forward position.

e. Install Drive Spring Rod Assembly.

1) Install driving spring rod assembly in upper right hand corner of bolt.

2) Push forward and to the right until driving spring rod assembly engages in hole in side plate of receiver and not in the groove for the backplate.

f. Install Backplate Assembly.

1) Install backplate assembly in receiver grooves. Pull backplate latch lock while lifting up on backplate latch.

2) Lower backplate assembly down until engaged in receiver.

3) Check to ensure backplate assembly is locked securely.

g. Install Barrel Assembly.

1) Retract bolt far enough for barrel locking spring lug to center in barrel locking spring hole on right hand side of receiver.

WARNING: During barrel installation, the charging handle must be pulled back to view the square on the barrel locking lug through the 3/8 in. hole in the right side of the receiver.

WARNING: Ensure that during barrel installation the square on the barrel extension is NOT pulled back PAST the 3/8 in. hole on the right side of the receiver or the barrel will not be attached to the barrel extension.

2) Insert barrel assembly into barrel support until locking pin engages camming slot.

3) Rotate barrel counterclockwise and secure locking pin in retention slot.

4) Perform weapon function check to ensure proper assembly.

Check on Learning:	Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.
Review Summary:	Conduct a Review/Summary of the information presented in the Learning Step.

TLO - LSA 5. Learning Step / Activity TLO - LSA 5. Perform Function Check on the M2A1 Machine Gun.

Method of Instruction:	Demonstration
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	10 mins
Media Type:	Actual Equipment
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-10, WP 0005 00-3/4.

a. Perform Safety/Function check for M2A1.

1) Place trigger block to 'S' (safe) position.

2) Unlock bolt latch release (rotate clockwise) and place the weapon on semi-automatic fire.

3) Charge weapon.

CAUTION: Do not dry fire weapon by allowing bolt to slam forward.

4) Holding handle, depress bolt latch release and slowly return bolt forward.

5) Press trigger. Weapon should not fire.

6) Place trigger block to 'F' (fire) position.

7) Press trigger. Firing pin should release.

8) If weapon fails safety/function check, notify field maintenance.

Check on Learning: Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.

Review Summary: Conduct a Review/Summary of the information presented in the Learning Step.

TLO - LSA 6. Learning Step / Activity TLO - LSA 6. Fixed Headspace and Timing Verification.

Method of Instruction:	Demonstration
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	30 mins
Media Type:	Actual Equipment
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-23&P, WP 0032 00-1.

WARNING: ACCIDENTAL DISCHARGE-Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

-DO NOT release the bolt or press the trigger.

-Ensure Field maintenance has performed headspace and timing check and adjustment for the M2A1.

-DO NOT keep live ammunition in work area.

WARNING: HEADSPACE AND TIMING-Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment. The following guidelines should be strictly enforced to prevent improper headspace and timing issues:

-Headspace and timing must be verified by unit armor prior to issuing. M2A1 headspace and timing adjustment is performed at field support maintenance.

-All M2A1 machine guns must be inspected and gaged at least once annually for safety and serviceability.

-Do not insert any object such as coin or feeler gage between the barrel extension and trunnion block while retracting the bolt to adjust headspace. Placing an object between the barrel extension and trunnion can cause excessive headspace adjustment and possible damage to the weapon or injury to personnel.

-All Army Reserve and National Guard M2A1 machine guns must be inspected and gaged at least once every two years, after the initial inspection/gaging procedures have been accomplished. This two year interval may be maintained unless preventive maintenance checks and services (PMCS) or other physical evidence indicates that an individual unit's M2A1 machine guns require inspection/gaging at a more frequent interval. If it is determined that a yearly inspection is necessary for an individual unit, only that unit will be affected. This will not affect other units in regard to the interval of inspection. Ensure M2A1 headspace and timing check and adjustment has been performed by Field maintenance personnel.

-As long as the Wear-Limit Gage indicates the weapon to be acceptable, the barrel(s) can be changed and fired as required. Once the weapon accepts the Wear-Limit Gage (.212 in.), (usually beyond at least 30,000 rounds of firing), Headspace Servicing may be required.

Failure to comply may result in serious injury to personnel.

WARNING: Explosion-Failure to properly attach the barrel extension to the barrel assembly will cause inaccurate head space and timing which may result in a misfeed of ammunition, failure to fire, failure to cycle, or catastrophic weapon malfunction.

-Ensure that during barrel installation the square on the barrel extension is NOT pulled back PAST the 3/8 in. hole on the right side of the receiver or the barrel will not be attached to the barrel extension.

-Ensure during reassembly that the bolt and barrel extension assembly serial number match the last four digits of the receiver serial number to prevent losing headspace, which could cause gun malfunction and serious injury.

-Maintain thumb pressure on buffer accelerator while installing barrel buffer assembly and barrel extension assembly into receiver.

NOTE: Headspace is the distance between the face of the bolt and the base of the cartridge case, fully seated into the chamber. Timing is the adjustment of the gun so that firing takes place when the recoiling parts are in the correct position for firing. Because the cartridge is held by the T-slot of the bolt, headspace with the machine gun is measured as the distance between the rear of the barrel and the face of the bolt/ This occurs when the recoiling parts are forward and there is positive contact between the breech lock recess in the bolt and the lock in the barrel extensions. Periodic calibration checks of the gauge, at least annually, should be made by direct support personnel.

NOTE: Initial headspace is set by direct support and no adjustment should be required. Headspace increases gradually with firing due to normal component wear. Periodic checks by unit armorer are required to ensure that the specific wear limit of 0.212 is not exceeded.

a. Headspace verifications.

1) Charge weapon to ensure that firing pin is retracted.

NOTE: If the 0.212 wear limit is exceeded, a headspace adjustment must be performed by field maintenance personnel.

NOTE: Bolt and barrel extension (with breech lock) should remain with the original receiver assembly. These parts are identified with the last four digits of the receiver serial number. If necessary, bolt and barrel extension may be transferred to another receiver; however, field personnel must verify proper headspace with the master barrel gage and select the proper breech lock size if these parts are interchanged.

NOTE: The breech lock is pinned to prevent removal from the barrel extension. The breech lock must only be changed by authorized maintenance personnel for headspace adjustment.

2) Remove slack in the bolt and barrel extension by retracting slide handle until the barrel extension begins to separate (but not more than 1/16 inch) from the trunnion block.

CAUTION: Do not depress trigger when headspace gage is in the T-slot. This could damage a firing pin and/or gage.

NOTE: Ensure that NO GO gage does not have any broken, bent, rusted, or pitted areas or other forms of mutilation that could affect dimensional tolerances.

3) Raise cartridge extractor and with firm pressure attempt to insert the NO GO gage in the T-slot between face of bolt and rear of barrel. If gage enters, remove gage and evacuate to support maintenance. If gage does not enter, release charging handle, rotate cartridge extractor down, allow bolt to go forward.

4) Headspace verification is complete. Proceed to timing verification.

b. Timing verification.

1) Grasp retracting slide handle and retract bolt just enough to insert NO FIRE gage with beveled edge against barrel notches between barrel extension and trunnion block. Release retracting slide handle slowly.

2) Ensure weapon safety switch is in the fire mode. depress trigger; gun should NOT fire. If M2A1 machine gun does fire, perform timing adjustment.

3) Retract bolt just enough to remove NO FIRE gage and insert FIRE gage with beveled edge against barrel extension and trunnion block. Release extracting handle slowly.

4) Depress trigger; M2A1 machine gun should fire. If M2A1 does not fire, perform timing adjustment

5) Timing adjustment is complete.

Check on Learning:	Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.
Review Summary:	Conduct a Review/Summary of the information presented in the Learning Step.

Gun.

Method of Instruction:	Demonstration
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	1 hr
Media Type:	Actual Equipment
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-23&P, WP 0006 00-1. Review the Preventive Maintenance Checks and Services (PMCS) Introduction with the students.

INSTRUCTOR NOTE: Refer students to TM 9-1005-347-23&P, WP 0007 00-1

NOTE: All PMCS checks and services will be completed before operation of the weapon. Inactive weapons, those not used for firing for three months or longer, will have those PMCS tasks listed as quarterly, semiannually, or annually completed as they are due. All PMCS checks and services annotated with an * will be completed annually during gaging unless forwarded for repair.

NOTE: M2A1 unique parts should NEVER be installed on the M2HB weapons. The Barrel Extension Assembly and Bolt have been serialized to remain together as an assembly with serial number or receiver. If a new Barrel Extension or Bolt is required, servicing the headspace and timing will be necessary. If any part of the Barrel Extension or Bolt is interchanged, headspace and timing must be reset.

NOTE: Do not attempt to remove the Breech Lock from the Barrel Extension. It is not intended for the Breech Lock to be removed during cleaning. Pinning the Breech Lock insures that the assigned Breech Lock/Barrel Extension combination is maintained, thus insuring proper Headspace.

SLIDE 92Y10D09-3 (ON)

INSTRUCTOR NOTE: Instructor can identify additional faults if desired to ensure the students understand identify faults.

a. Verify the administrative information on the DA Form 5988-E.

1) Verify the DODAAC is WBAKT0.

2) Verify the organization is HHC, 13th Military Police Battalion.

3) Verify the ADMIN NUM and SERIAL NUMBER of the weapon.

INSTRUCTOR NOTE: Have students enter the serial number of the weapon that they are going to PMCS as the serial number on the DA Form 5988-E.

4) Verify M2A1 is listed as the EQUIP MODEL.

5) Verify Machine Gun, Caliber .50 is listed as the EQUIP NOUN.

6) Verify Quarterly is listed as the TYPE INSPECTION.

7) Verify the TMs being used.

b. Conduct the Before Interval Preventive Maintenance Checks and Services for Machine Gun M2A1.

1) Barrel Assembly.

a) Check barrel chamber for empty cartridge case.

b) Check barrel locking notch for wear.

c) Check threads for burrs, cracks, or binding.

d) Check pin on barrel cracks or deformation.

e) Check flash suppressor is tight and check for cracks.

2) Bore

a) Check bore for pits, bulges, metal fouling, empty cartridge cases, or rings.

WARNING: ACCIDENTAL DISCHARGE-Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

NOTE: There is a gap which allows for expansion (when barrel gets hot from firing) of the satellite liner (lined barrel).

3) Chamber

a) Check chamber for pits, bulges, metal fouling, and rings.

NOTE: Cartridge stop for blank ammo is different (longer) than cartridge stop for live ammo. ensure cartridge stop is changed when firing blank or live ammo. Rear cartridge stop will not replace front cartridge stop.

4) Barrel Support Cam Slot

a) Check M2A1 barrel support cam slot for burrs.

5) Front RH/LH Cartridge Stops

a) Check if front cartridge stop (RH feed) /front cartridge stop (LH feed) is broken, tight fitting, or incorrectly assembled.

6) Link Stripper

a) Check if link stripper (RH feed only) is broken, tight fitting, or incorrectly assembled.

7) Rear Cartridge Stops.

a) Check if rear cartridge stop (RH feed only)/rear cartridge stop assembly (LH feed only) is broken, tight fitting, or incorrectly assembled.

b) Rear cartridge stop will not replace front cartridge stop.

8) Pin

a) Check for broken or missing pawl pin.

9) Top Cover Assembly

a) Check cover latch and cover latch lever to see if broken or missing.

b) Check cover for more than slight movement.

10) Belt Feed Lever

a) Check belt feed lever for cracks, breaks, or bends.

11) Lock Pin

a) Check for missing lock pin.

NOTE: Bolt assembly with minor gouging and/or imperfections in locking lug(s) causing no degradation in performance is acceptable.

NOTE: The entire Serial Number is located on the receiver only.

12) Bolt Assembly

a) Check bolt locking lugs for burrs or cracks.

b) Verify serial number on barrel extension and bolt match last four numbers or serial number on receiver.

13) Bolt

a) Check bolt alternate feed area, cam grooves, and T-slot for burrs or cracks.

b) Check for chipped T-slot.

14) Bolt Body

a) Check bolt body for burrs.

b) When assembled, ensure bolt body slides freely.

15) Sear Stop and Pin.

a) Check sear stop and pin for bends or breaks.

16) Cartridge Extractor

a) Check cartridge extractor and spring for burrs or breaks.

CAUTION: Incorrect installation of bolt switch can lead to battered belt feed lever if cover is closed and an attempt is made to function test the weapon.

17) Bolt Switch

a) Check bolt switch for burrs, looseness and incorrect installation.

18) Extractor Stop Pin

a) Check for deformed, broken or missing extractor stop pin.

19) Arm Support

a) Check bolt extractor mounting arm support for chips and burrs.

20) Sear Spring

a) Check sear spring for deformity, collapsed coils, weakness, elongation, crisp spring action, and/or incorrect installation (must be in sear hole and recess in bottom of the bolt).

b) Spring should not be able to be compressed fully with fingers.

21) Cocking Lever Pin

a) Check cocking lever pin for burrs or breaks.

22) Sear

a) Check sear for burrs.

b) Ensure sear notch has a sharp edge and is not chipped or broken.

23) Sear Slide.

a) Check sear slide for free movement in guide grooves.

b) Check for distorted sear notch and proper installation, enters from left to right (for left hand feed).

24) Barrel Extension

a) Check breech lock and barrel extension for chipping.

b) Check breech lock for burrs, cracks, or binding.

c) Check beveled edges of breech lock for rolled back, broken, or chipped

edges.

d) Verify serial number on barrel extension and bolt match last four numbers of serial number on receiver.

25) Barrel Locking Spring.

a) Check barrel locking spring for retention; check locking spring for looseness and correct installation (spring locking lugs pointed towards barrel locking lugs).

b) Check locking lugs for weakness and/or crisp spring action. Check for wear (rounded) spring locking lug.

26) Barrel Extension Assembly.

a) Check for chipped or cracked metal (including threaded area). Check shaft for cracks or looseness.

b) Check first (partial) thread (bolt side) for chipped or cracked metal. Chips or cracks may be removed by hand stoning, provided chip or crack does not visibly extend beyond the root of the thread.

c) Check last (partial) thread (barrel side) for chipped or cracked metal. Chips or cracks may be removed by hand stoning, provided chip or crack does not visibly extend beyond the root of the thread.

NOTE: All locations taken from gunner's perspective.

d) Check remaining threads in the barrel extension for chips or cracks. chips of cracks 1/2 linear inch in length or less shall be smoothed or repaired by hand stoning.

27) Trigger Lever.

a) Check trigger lever for binding, bends, cracks, or breaks.

28) Trigger Lever Pin

a) Check for bent or missing trigger lever pin and for a broken lock.

29 Drive Spring Rod Assembly

a) Check drive spring rod assembly for broken or cracked springs, collapsed coils, flat spots on coils, or deformed, cracked, or broken rod.

WARNING: HEADSPACE AND TIMING-Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment.

30) Headspace and Timing

a) Unit Armorer will verify headspace and timing.

31) Trigger Lever Stop Assembly.

a) Check if adjustable stop is missing or broken, or has stripped screw threads.

32) Timing Adjustment Nut.

a) Check for loose, stripped, or missing timing adjustment nut. Check installation (ensure notch is on top).

b) Ensure timing lock screw is seated into groove of timing adjustment nut.

c. Conduct the Quarterly Preventive Maintenance Checks and Services for the M2A1 Machine Gun.

1) Helical Compression Spring.

a) Check for burred, bent, or missing shoulder pin.

b) Check spring for missing, cracked, elongated, or collapsed spring coils.

c) Check belt feed lever for proper (crisp) spring action.

INSTRUCTOR NOTE: Inform the students that the shoulder pin spring is elongated and needs to be replaced. The spring is not in PLL and needs to be requested.

2) Belt Feed Lever.

a) Check belt feed lever for the correct direction or feed (left or right).

3) Cover Extractor Spring.

a) Check cover extractor spring to see if burred or broken.

4) Top Cover Assembly.

a) Check latch and cover latch lever to see if they are broken or missing.

b) Check cover for more than slight movement.

5) Belt Feed Slide Assembly.

a) Check belt feed slide assembly for burrs, cracks, and binding.

6) Belt Feed Pawl.

a) Check belt feed pawl for binding in belt feed slide assembly.

7) Spring Pin.

a) Check spring pin for looseness.

b) Check if spring wire is broken, coil collapsed or missing.

8) Spring.

a) Check for weak, broken, cracked, elongated, or collapsed coils or missing spring.

b) Check spring for correct installation; oval/large end should be in belt feed pawl with loop pointing down and away from pawl arm.

c) Check for collapsed spring.

9) Pawl.

a) Check for bent or broken pawl arm.

10) Pins.

a) Check for bent or broken pins.

11) Flat Spring.

a) Check if flat spring is weak, broken, or not seated over cover latch.

12) Cover Grooves.

a) Check cover grooves for burrs, cracks, or damage.

13) Cover Pin.

a) Check for burred, bent, worn, or missing cover pin.

WARNING: HEADSPACE AND TIMING-M2A1 headspace and timing must be verified by Unit Armorer prior to issuing. M2A1 headspace and timing adjustment is performed at field maintenance.

14) Headspace and Timing.

a) Verify headspace and timing.

INSTRUCTOR NOTE: Inform students that the NO GO Gage enters the T-slot.

15) Back Plate Assembly.

a) Check upper and lower handle frames for bends, cracks, or breaks.

16) Buffer Tube.

a) Check back plate buffer tube for any fluids (oil, solvent, or water) coming from the inside of the buffer tube. Do not submerge in water.

17) Handles.

a) Check handle grips for cracks or missing screws.

18) Bolt Latch Release Lock.

a) Check bolt latch release lock for breaks or failure to hold bolt latch release completely down.

19) Bolt Latch Release.

a) Check bolt latch release and spring for cracks, collapsed spring, or breaks.

b) Check if spring is broken or missing.

c) Check for proper (crisp) spring action by pressing on and releasing bolt latch release.

20) Trigger and Spring.

a) check trigger and spring for cracks or breaks; broken, collapsed, or missing spring.

b) Check for proper (crisp) spring action by pressing on and releasing trigger.

21) Trigger Block.

a) Place trigger block in S position and attempt to fire.

b) Attempt to place trigger block in SAFE mode.

22) Backplate.

a) Check for missing sleeve spacer.

b) Check for proper (crisp) spring action by pressing on and releasing lock latch, manual lever, and trigger

23) Retracting Slide Assembly

a) Check bolt stud for burrs or breaks.

24) Retracting Slide Handle.

a) Check retracting slide handle and spring for cracks.

b) Check for spring tension and proper assembly.

25) Retracting Slide.

a) Check retracting slide for burrs and binding in bracket.

26) Cotter Pins.

a) Check for missing or broken cotter pins.

27) Shoulder Pin.

a) Check for loose or broken shoulder pin, stud, or shoulder screw.

28) Safety Wire.

a) Check for broken or missing safety wires.

29) Plunger.

a) Check plunger for proper assembly with bracket and spring.

b) check for spring pressure when plunger is depressed.

c) Check for collapsed spring.

30) Receiver Assembly.

a) Check barrel support for burrs, cracks, or looseness.

31) Barrel Support.

a) Check M2A1 barrel support cam slot for burrs.

32) Extractor Switch.

a) Check extractor switch for spring tension and incorrect installation and presence of cotter pin.

b) Check extractor switch for looseness.

33) Bolt Latch.

a) Check bolt latch for spring tension and freedom of movement.

b) Check bolt latch catch for rounded edges.

34) Breechlock Cam.

a) Check breechlock cam for up and down movement. Cam MUST have minimal movement.

b) Check cam for wear in channel (rail) area.

35) Safety Wire.

a) Check for safety wire through slotted nut and flat spring (flex only).

36) Receiver.

a) Check receiver for cracks/movement of riveted components. If riveted components are loose, send to Field Maintenance.

d. Conduct the Annual Interval Preventive Maintenance Checks and Services (PMCS) for M2A1.

INSTRUCTOR NOTE: Remind students that these checks will need to be conducted once during the year.

1) Barrel Buffer Body Assembly.

a) Check for missing, damaged or worn parts.

2) Lock Depressors.

a) Check lock depressors for cracks or breaks.

NOTE: Lock depressors may have movement (side to side or up/down) as long as the movement does not cause the weapon to malfunction.

b) Check lock depressors for failure to stay in barrel buffer body. Lock depressors may have a tendency to move (slight up and down or side to side movement).

3) Annual safety and serviceability inspection and gaging.

Check to ensure annual safety and serviceability inspection and gaging have been done on both barrels and that the next gaging and inspection is scheduled.

WARNING: EXPLOSION-Ensure during reassembly that the bolt and barrel extension assembly serial number match the last four digits of the receiver serial number to prevent losing headspace, which could cause malfunction and serious injury.

CAUTION: If the bolt is retracted with the cover up and then cover is closed and the bolt released, the belt feed lever tang will not seat in the belt groove. this results in a battered tang and a burred bolt body.

4) Bolt Assembly.

a) Check for missing lock pin.

5) Cocking lever.

a) Check cocking lever for burrs of bends (especially where the lever cams).

6) Firing Pin Extension Assembly.

a) Check if firing pin extension assembly binds, is bent or cracked.

b) Check for distorted notch.

7) Firing Pin Spring.

a) Check for weak, broken, deformed, or collapsed coils on firing spring.

8) Firing Pin.

a) Check firing pin for cracks, chipped or sharp tip. Tip should be smooth and rounded.

CAUTION: No stoning of locking lugs is authorized. Stoning the locking lugs will result in premature increase in headspace. Failure to comply may result in damage to equipment.

NOTE: After correct headspace has been achieved, bolt and barrel extension assemblies must be serialized with the last four digits of the M2A1 machine gun receiver. the barrel extension assembly must be serialized on the bottom surface and the bolt assembly must be serialized on the left side. Serialization marks may be made by stamping, etching, or with a vibrating pen.

9) Cartridge Extractor.

a) Check cartridge extractor for bent arm and/or chipping on shank in area where shank is inserted in bolt.

10) Extractor.

a) Check for chipped claw.

11) Cartridge Ejector.

a) Check for broken bolt ejector and staking.

12) Cartridge Spring.

a) Check for deformed, collapsed cartridge spring coils.

b) Check cartridge extractor for crisp spring action.

NOTE: Staking or swaging of the buffer body to secure or limit the movement of the lock depressors in their recesses is not required nor is it desirable. However, marks derived from previous unauthorized staking or swaging on buffer are acceptable as long as the staking/swaging does not interfere with the functioning of the weapon.

NOTE: Ensure buffer accelerator is secured in barrel buffer body with accelerator pin assembly.

NOTE: Swage the buffer body by using the blunt punch in the area around the lock groove in one or more places along the groove as required retaining the buffer body lock so that it cannot be removed by hand.

13) Lock Depressor.

a) Check rivets on lock depressors to ensure depressors are securely retained in barrel buffer body and rivets are not loose. the rivets should not be staked or swaged in a manner which precludes slight movement of the lock depressors. The center of the rivets may be center punched if tightening of the lock depressor is required.

14) Accelerator.

a) Check for excessive wear on accelerator.

15) Accelerator Pin

a) Check accelerator pin for burrs, looseness or wear, and for broken, not set,

collapsed or missing spring.

16) Buffer Body Lock.

a) Check retention of the buffer body lock. Buffer body assembly is serviceable as long as the lock cannot be removed by hand and/or can be secured by punching per following assembly directions. Previous swaging that does not damage, prevent assembly, or impair normal operation of the buffer body and lock is acceptable.

17) Buffer Assembly.

a) Check that cotter pin is present.

b) Check that rod and engaging notch are not damaged.

18) Buffer Spring.

a) Check that buffer spring is not broken, deformed, or coils collapsed.

19) Buffer Tube/Back Plate Assembly.

a) Disassemble buffer tube components from back plate assembly. check if disks are deformed, cracked, or collapsed.

NOTE: Safety Wire is installed, solely as a precautionary measure, to prevent screws from loosening or falling out. when the user receives M2A1 that are new or overhauled, the safety wire is a single wire that may or may not be double twisted. Both methods are authorized and/or acceptable for use.

20) Trigger Block.

a) check trigger block for worn or damaged lockwire or shoulder screws.

SLIDE 92Y10D09-3 (OFF)

Check on Learning:	Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.
Review Summary:	Conduct a Review/Summary of the information presented in the Learning Step.

TLO - LSA 8. Learning Step / Activity TLO - LSA 8. Verify the DA Form 5990-E on the M2A1 Machine Gun.

Method of Instruction:	Demonstration
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	5 mins
Media Type:	Actual Equipment
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

SLIDE 92Y10D09-4 (ON)

a. Now that a fault that requires a higher level of maintenance is identified, the DA Form 5990-E, Maintenance Request Form, must be prepared. The SAMS-E operator

will take the required information from the DA Form 5988-E or DA Form 2404. You will need to verify the information is accurate before taking the DA Form 5990-E and the weapon to the next level of maintenance for repair.

INSTRUCTOR NOTE: Remind students that a manual form DA 2407 can also be used as a Maintenance Request Form.

SECTION I - CUSTOMER DATA

1) Verify **WBAKT0** is entered as the UIC.

2) Verify **HHC, 13th MP BN** is entered as the unit.

3) Verify **(804) 765-8591** is entered as the phone number.

4) Verify **0** is entered as the UTIL CODE. Refer to DA Pam 750-8, App B, Table B-6 for applicable utilization codes.

SECTION II - ACTIVITY DATA

5) Verify the support agency information is accurate.

SECTION III - EQUIPMENT DATA

6) Verify **1** is entered in the TYPE MNT REQ location. Refer to DA Pam 750-8, App B, Table B-20 for available codes.

7) Verify **A** is entered in the ID location.

8) Verify **1005-01-511-1250** is entered in the NSN location.

9) Verify **M2A1** is entered in the MODEL location.

10) Verify **Machine Gun, Caliber .50** is entered in the NOUN location.

11) Verify the serial number matches the serial number on the DA Form 5988-E.

12) Verify **00001** is entered as the QTY.

13) Verify a work order number is entered. This number will be generated by the SAMS-E System.

14) Verify **05** is entered as the PRIORITY.

15) Verify **A** is entered in the FAILURE DETECTED location. Refer to DA Pam 750-8, App B, Table B-3 for available codes.

16) Verify **F** is entered as the LEVEL OF WORK.

17) Verify **ADMIN NUM** is entered.

18) Verify **Failed Headspace and Timing** is entered as the deficiency. The deficiency should match the deficiency listed on the DA Form 5988-E/DA Form 2404.

19) Obtain signature in the PD AUTHENTICATING SIGNATURE if required. Signature of commander or commander's designated representative is required for all 01 through 10 Priority requests.

SECTION IV - SIGNATURE DATA - Can be completed when weapon is turned in at support maintenance for repair.

b. Attach DA Form 2404/DA Form 5988-E to the DA Form 5990-E.

c. Submit all copies of the Maintenance Request Form to Support Maintenance with the weapon.

SLIDE 92Y10D09-4 (OFF)

Check on Learning:

Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.

Review Summary:

Conduct a Review/Summary of the information presented in the Learning Step.

TLO - LSA 9. Learning Step / Activity TLO - LSA 9. Practical Exercise - Perform Field Maintenance (PMCS) on the M2A1 Machine Gun PE.

Method of Instruction:	Practical Exercise (Hands-On/Written)
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	1 hr 10 mins
Media Type:	Actual Equipment
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

Complete the practical exercise included with this lesson.

a. Give the students time to complete the practical exercise for this lesson.

b. Assist the students as needed during the practical exercise to ensure material is understood.

c. Review the practical exercise with the students and answer any questions the students may have.

Check on Learning:

Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.

Review Summary:

Review the practical exercise with the students. Review the questions and clear up any misunderstandings that the students may have.

TLO - LSA 10. Learning Step / Activity TLO - LSA 10. Conduct a Performance Exam on the M2A1 Machine Gun.

Method of Instruction:	Hardware-Oriented Test
Mode of Delivery:	Resident Instruction
Instr Type (I:S Ratio):	Military - ICH, (1:10)*
Time of Instruction:	1 hr 10 mins
Media Type:	Actual Equipment
Other Media:	Unassigned
Security Classification:	This course/lesson will present information that has a Security Classification of: U - Unclassified.
Note: Marked as (*) is	derived from the parent learning object

The soldier will complete a hands on performance based examination covering conducting field maintenance on the Machine Gun, Caliber .50; M2A1 with Fixed Headspace and Timing. Field maintenance will include the clearing, disassembly, conducting preventive maintence checks and services (PMCS), assembly, and function check of the M2A1 Machine Gun.

Check on Learning:	Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.
Review Summary:	a. Conduct a Test Review/Analysis with the students. b. Review any questions and clear up any misunderstandings that the students may have. c. Ensure all test material is gathered from the students. Secure all test material until it can be secured.

SECTION IV. SUMMARY

Method of Instruction:	Reflective Discussion
Mode of Delivery:	Resident Instruction
Instr Type(I:S Ratio):	Military - ICH, (1:30)
Time of Instruction:	15 mins

Check on Learning

Determine if the students have learned the material presented by soliciting student questions and explanations. Ask the students questions and correct misunderstandings.

Review/ Summary

SLIDE 92Y10D09-5 (ON)

During this lesson the following subjects were covered

a. Identify the Characteristics, Capabilities and Features, and Major Components of the M2A1

b. Unload and Clear the M2A1 Machine Gun.

c. Reassemble the M2A1 Machine Gun.

d. Perform a Function Check on the M2A1 Machine Gun

e. Fixed Headspace and Timing Verification on the M2A1 Machine Gun.

f. Perform Preventive Maintenance on the M2A1 Machine Gun.

g. Verify the DA Form 5990-E on the M2A1 Machine Gun

SLIDE 92Y10D09-5 (OFF)

SECTION V. STUDENT EVALUATION

Testing Requirements

The soldier will complete hands on performance based examination covering the materials presented in this lesson. The exam will be graded on a GO/NO-GO basis. Student must receive a GO to be considered successful.

Feedback Requirements

NOTE: Feedback is essential to improving training, always encourage students to provide comments and ensure to complete the Module AAR.

NOTE: Review the completed practical exercise with the students. Ensure lesson is understood by asking questions and receiving feedback from the students. Clear up any misunderstandings.

Appendix A - Viewgraph Masters

Perform Maintenance on the Machine Gun Caliber 50 M2A1 with Fixed Headspace and Timing
101-92Y10D09 / Version 05.0 ©

Sequence	Media Name	Media Type
1	92Y10D09 Ver3 Classroom Presentation	PPTX

Appendix B - Assessment Statement and Assessment Plan

Assessment Statement: None.

Assessment Plan: None.

PRACTICAL EXERCISE(S)/SOLUTION(S) FOR LESSON 101-92Y10D09 Version 05.0 ©

Appendix D - Student Handouts

Perform Maintenance on the Machine Gun Caliber 50 M2A1 with Fixed Headspace and Timing
101-92Y10D09 / Version 05.0 ©

Sequence	Media Name	Media Type
10	92Y10D09 Ver3 Student Handout	DOCX
20	92Y10D09 Ver3 Practical Exercise	DOCX
21	92Y10D09 Ver3 Practical Exercise Solution	DOCX