

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

PREFACE

1. The Towed Artillery Repairman Course is designed to provide instruction for the tasks listed in Section I Appendix B of this POI. The terminal learning objectives for each lesson in Section IV have been developed from the task list.

2. All agencies and commands receiving graduates of this course, and specifically those sighted in Section VI, are requested to review the contents of this POI and evaluate performance of the graduates against field requirements. Comments and recommendations may be submitted to:

COMMANDING OFFICER
Marine Detachment
U.S. Army Ordnance Center and School
Aberdeen Proving Ground, Maryland 21005-5281
ATTN: Curriculum Development Officer

3. The following information for this course has been submitted for inclusion in the current edition of NAVMC 2771 (Formal School Catalog):

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

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TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION I - COURSE DESCRIPTIVE DATA

1. COURSE TITLE. TOWED ARTILLERY REPAIRMAN
2. LOCATION. United States Marine Corps, Marine Detachment, U.S. Army Ordnance Center and School, Aberdeen Proving Ground, MD 21005-5281
3. COURSE ID. A010801
4. OTHER SERVICE COURSE NUMBER. 642-2131
5. MILITARY ARTICLES AND SERVICE LIST NUMBER. NA
6. PURPOSE. To train enlisted personnel in Towed Artillery corrective maintenance, preventive maintenance, inspection procedures, administrative forms, and records.
7. SCOPE. The course focuses on maintenance administrative forms and procedures, corrosion control procedures, principals of artillery weapons, theory of operation, inspection, care, cleaning, and PMCS of fire control devices, principals of hydraulic systems and components on Towed Artillery Howitzers. Students learn to evaluate cannon tubes, properly inspect, remove, install, and repair equilibrators, elevating and traversing mechanisms, top and bottom carriages, brake system components, recoil mechanism, cannon tubes, and the HyPak system on Towed Artillery Howitzers.
8. LENGTH (PEACETIME). 32 Training Days
9. CURRICULUM BREAKDOWN (PEACETIME).
 - 203.00 Academic Hours
 - 0.50 Administrative
 - 14.50 Demonstration
 - 3.75 Guided Discussion
 - 30.25 Lecture
 - 92.25 Practical Application
 - 52.95 Performance Exam
 - 8.80 Written Exam
 - 53.00 Administrative Hours
 - 16.00 Administrative
 - 29.00 Commanders Time
 - 8.00 Guided Discussion
10. LENGTH (MOBILIZATION). 26 Training Days
11. CURRICULUM BREAKDOWN (MOBILIZATION). Same as Peacetime.
12. MAXIMUM CLASS CAPACITY. 10
13. OPTIMUM CLASS CAPACITY. 8
14. MINIMUM CLASS CAPACITY. 4
15. CLASS FREQUENCY. 8
16. STUDENT PREREQUISITES.
 - a) MM 95 or higher.
 - b) No security clearance required.
 - c) Must be physically capable of lifting and lowering 120 pounds as part of a two man team, and applying 500 foot pounds of force by either pushing or pulling.
 - d) In case of lateral move, must have 24 months or more remaining on active duty upon completion of training.

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SECTION I - COURSE DESCRIPTIVE DATA

17. MOS RECEIVED. 2131
18. QUOTA CONTROL. Training Command (C475)
19. FUNDING. TECOM (C464)
20. REPORTING INSTRUCTIONS. Students report to the Commanding Officer, Marine Detachment, U.S. Army Ordnance Center and School, Aberdeen Proving Ground, Maryland 21005. All students should report in by 2359 the Wednesday prior to the start date. During working and non-working hours report to Bldg 4403, Detachment Headquarters, Commercial phone 1-800-392-2015 ext: 5703/ or DSN: 298-5703/. Marines will report in Service Alpha uniform. Privately Owned Vehicles (POV) and family members are not authorized. Government messing and billeting are available.
21. INSTRUCTOR STAFFING REQUIREMENTS. See Appendix A for Instructor Computation Worksheet.

These on hand strengths do not include the addition of the XM777 Lightweight Howitzer and should be reviewed for additional requirements when any new equipment is planned for fielding.

LN#	GRADE	MOS	BILLET DESCRIPTION	REQUIRED
194A	E7	2131	INSTRUCTOR	2
194B	E6	2131	INSTRUCTOR	1

22. SCHOOL OVERHEAD REQUIREMENTS. None

LN#	GRADE	MOS	BILLET DESCRIPTION	REQUIRED
UNK	E6	2100	CURRICULUM DEVELOPER	1
192B	O4	2102	COMMANDING OFFICER /MC REP	1
192C	O3E	2102	INSTRUCTOR / XO	1
192D	E8	9999	FIRST SERGEANT	1
192E	E6	0193	ADMIN CHIEF	1
192F	E5	0121	ADMIN CLERK	2
192G	E4	0121	UNIT DIARY CLERK	2
192J	E3	0151	ADMIN CLERK	1
192K	O3E	2102	CRS DEV SUPERVISOR	1
192L	E7	2111	ACADEMIC COORDINATOR	1
192M	E4	3043	SUPPLY NCO	1
192O	E6	0369	PLATOON SERGEANT	1
195A	W-4	2120	INSTRUCTOR/OIC/PLTCMDR	1
UNK1	E6	2100	MAT PLT SERGEANT	1
UNK3	E7	2100	S-3 OPERATIONS & TRAINING / SACO	1
UNK4	E7	2100	DETACHMENT GUNNERY SERGEANT	1
UNK6	E7	2100	ISC / CPMPUTER REPAIR / NETWORK ADMIN	1

Comments Line# UNK: The Curriculum Developers are Marines who are responsible for the input of information into the CDD/POI and Master Lesson Files. This billet is a full time job and the Marine is taken from one of the platoons.

Comments Line# UNK1 : Marines Awaiting Training, one instructor is tasked with this duty for 6 months out of the year. This billet is a full time job and the Marine is taken from one of the platoons.

Comments Line# UNK3 : This billet is a full time job, who is responsible for all permanent party training and the Marine is taken from one of the platoons.

Comments Line# UNK4 : The Detachement Gunnery Sergeant is in charge of barracks, grounds and maintenance. This billet is a full time job and the Marine is taken from one of the platoons.

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SECTION I - COURSE DESCRIPTIVE DATA

Comments Line# UNK6 : The ISC is responsible for all the computer assets and LAN connections throughout the Detachment. This billet is a full time job and the Marine is taken from one of the platoons.

23. TRAINING/EDUCATION SUPPORT REQUIREMENTS. Provided by Marine Corps Detachment, Aberdeen Proving Ground, MD. 21005-5281

The following facility requirements are identified for one iteration of this course:

<u>FACILITY</u>	<u>FACILITY ID</u>	<u>SQ FT</u>	<u>REQ'D</u>	<u>ON HAND</u>	<u>SHORT</u>
CLASS ROOM	BLD # 5214	440	1	1	0
INSTRUCTOR OFFICE	BLD # 5214	220	1	1	0
MAINTENANCE BAY	BLD # 5214	8040	1	1	0
MAINTENANCE SHOP	BLD # 5214	400	1	1	0
TOOL ROOM	BLD # 5214	150	1	1	0

The following materiel requirements are identified for one iteration of this course:

<u>NOMEMCLATURE</u>	<u>NSN</u>	<u>UNIT OF ISSUE</u>	<u>REQ'D</u>	<u>ON HAND</u>	<u>SHORT</u>
*AIMING CIRCLE M2A2	1290-01-067-0687	EACH	0	0	0
A-FRAME, HOIST 5 TON	3815-01-335-6673	EACH	3	2	1
ACCESSORY OUTFIT, PULLOVER GAUGE	4933-00-348-8652	EACH	3	1	2
BORESCOPE STAND	FABRICATED	EACH	6	6	0
BOTTLE JACK, 20 TON	5120-00-188-1788	EACH	3	3	0
BOXLIGHT PROJECTOR	-	EACH	1	1	0
BRAKE FLUID, SILICONE	9150-01-059-2586	GALLON	3	3	0
BRAKE FLUID, SILICONE	9150-01-102-9455	GALLON	3	3	0
BRAKE HEAD ASSEMBLY	1025-01-033-5440	EACH	10	10	0
CALIPER, VERNIER	5120-00-293-2913	EACH	10	10	0
CHAIR	-	EACH	16	16	0
CHARGIN KIT, NITROGEN	1025-01-080-3200	EACH	4	2	2
CHARTS FOR NITROGEN	-	EACH	2	2	0
CHEST, OIL PUMP, M-3/KJ4000	4933-00-712-2378	EACH	4	4	0
CLEANER, LUBRICANT AND PRESERVATIVE	9150-01-053-6688	GALLON	1	1	0
CLOTH, ABRASIVE, 9 X 11 SH 50 SHEETS	5350-00-221-2872	EACH	1	1	0
CLOTH, ABRASIVE, CROCUS 2" WIDE BY 50 YARDS	5350-00-268-3116	EACH	1	1	0
CLUTCH ASSEMBLY FRICTION	3010-01-040-6988	EACH	6	4	2
COMPRESSOR ARI 150 PSI MIN	-	EACH	1	1	0
COMPUTERS	-	EACH	3	3	0
DATA DISPLAY GROUP, GUN OD-144(V)	7025-01-134-3219	EACH	5	5	0
DESK	-	EACH	15	15	0
DRIP PAN	FABRICATED	EACH	10	10	0
DRIVE UNIT, ANGLE ELEVATING	3010-01-094-3329	EACH	6	6	0
FLOOR JACK 10 TON	-	EACH	2	2	0
GENERAL MECHANIC TOOL BOX	5180-00-606-3566	EACH	10	10	0
GMD (GREASE MOLYBDENUM DISULFIDE)	9150-00-233-4004	GALLON	3	3	0
GRINDER BENCH	3415-00-517-7754	EACH	1	1	0
HARD HAT	-	EACH	13	13	0
HAZARDOUS STORAGE CONTAINER	-	EACH	3	3	0
HYDRAULIC FLUID,	9150-00-935-9808	GALLON	10	10	0



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SECTION I - COURSE DESCRIPTIVE DATA

PERROLEUM BASE (OHT)						
HYDRAULIC RAM PUMP	4320-01-314-9352	EACH	10	10	0	
HYDRAULIC SCHEMATICS	-	EACH	11	11	0	
LUBRICATING OIL	9150-00-273-2389	GALLON	6	6	0	
M17 FIRE CONTROL QUADRANT	1290-01-037-3883	EACH	5	5	0	
M18 FIRE CONTROL QUADRANT	1290-01-037-7289	EACH	4	4	0	
M198 155MM HOWITZER	1025-01-026-6648	EACH	3	3	0	
M1A2 COLLIMATOR, INFINITY	1240-01-456-5452	EACH	5	0	5	
AIMING						
M1A2 GUNNERS QUADRANT	1290-00-169-1999	EACH	10	10	0	
M3 BORESCOPE	6650-01-063-0035	EACH	3	3	0	
M45 MOCK-UP	FABRICATED	EACH	1	1	0	
M45 RECOIL MECHANISM	1025-01-094-3333	EACH	1	1	0	
MANIFOLD ASSEMBLY	1025-01-038-0735	EACH	5	5	0	
NITROGEN BOTTLES (3500)	8120-01-263-3614	EACH	9	9	0	
OVER HEAD CRANE (10 TON)	-	EACH	1	1	0	
PODIUMS	-	EACH	2	2	0	
POWER BOOSTER ASSEMBLY	2530-01-084-0449	EACH	7	7	0	
POWER SUPPLY	6130-00-330-5600	EACH	1	1	0	
PROJECTOR SCREEN	-	EACH	1	1	0	
RAGS 50 POUND	7920-00-205-1711	BUNDLE	2	2	0	
RECOIL EXERCISER	1025-01-417-9312	EACH	1	1	0	
SAFETY GOGLES	-	AMPOULE	13	13	0	
SAND PAPER BOX OF 50	5350-00-221-0882	EACH	1	1	0	
SAW HORSE	-	EACH	4	4	0	
SHOP FANS	-	EACH	4	4	0	
SHOP SET ARTY 3RD & 4TH	4933-01-267-1877	EACH	2	1	1	
ECH. KIT (M198)						
SOLVENT TANK	-	EACH	1	1	0	
TAIL LIGHT VEHICULAR	6220-01-213-2430	EACH	3	3	0	
TAPE ANTISEIZING	8030-00-889-3544	EACH	6	6	0	
TELEVISION	-	EACH	3	3	0	
TOOL KIT ARTILLERY	5180-00-606-3566	EACH	1	0	1	
(E1712)						
TOOL KIT, ARTILLERY	5180-01-146-1936	EACH	4	2	2	
HOWITZER M198 (N6172)						
TRASH CAN 50 GAL.	-	EACH	7	7	0	
VALVE LINEAR, DIRECT	5340-01-303-1327	EACH	1	1	0	
EMERGENCY						
VIDEO CASSETTE RECORDER	-	EACH	2	2	0	
WISE	3460-00-298-0272	EACH	1	1	0	
WALLLOCKER	-	EACH	3	3	0	
WD-40 12OZ BOTTLE	P/N 42150	EACH	2	2	0	
WHITE BOARD	-	EACH	3	3	0	
WIRE NONELECTRICAL,	9505-00-293-4208	POUND	2	2	0	
ANNEAL, ED CORR-RESIST,						
ST						
WIRE NONELECTRICAL,	9505-00-248-9849	POUND	2	2	0	
CARBON STEEL, ZINC-						
COATED						
WIRE NONELECTRICAL,	9505-00-603-4122	POUND	2	2	0	
CORROSION STEEL ZINC						
WIRE, NONELECTRICAL,	9505-00-248-9850	POUND	2	2	0	
CARBON STEEL						
WOODEN BLOCKS 2X4X16	-	EACH	6	6	0	
WOODEN BLOCKS 4X4X72	-	EACH	12	12	0	
WOODEN BLOCKS 8X8X14	-	EACH	6	6	0	
WORK BENCH (1)	-	EACH	9	9	0	
WTR GREASE, AIRCRAFT 3LB	9150-00-935-5851	EACH	2	2	0	

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SECTION I - COURSE DESCRIPTIVE DATA

24. TASK LIST. See Appendix B.

CDD NOTES: The following item is required for the course, however, the items are maintain with the Electro-Optical Ordnance repairer:

Aiming Circle M2A2 - With a requirement of a quantity of 5.

MOA have been submitted on the following items:

Shop set Arty 3rd & 4th Ech. kit (M198)
Tool Kit, Artillery Howitzer M198 (N6172)

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SECTION I - COURSE DESCRIPTIVE DATA

APPENDIX B - TASKLIST

DUTY: 2131.01 OPERATION AND MAINTENANCE

TASKS: (S) 2131.01.01 MAINTAIN M198 155MM HOWITZER TOOLS

DUTY: 2131.02 PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

TASKS: (S) 2131.02.01 PERFORM M198 155MM HOWITZER PMCS

DUTY: 2131.03 EQUIPMENT REPAIR

TASKS: (S) 2131.03.01 MAINTAIN M198 HOWITZER COLLATERAL EQUIPMENT

(S) 2131.03.02 REPAIR M199 CANNON TUBE ASSEMBLY

(S) 2131.03.03 REPAIR M45 RECOIL MECHANISM

(S) 2131.03.04 REPAIR M39 CARRIAGE

DUTY: 2131.04 ADMINISTRATIVE FUNCTIONS

TASKS: (S) 2131.04.10 FOLLOW BASIC SHOP PROCEDURES

(S) 2131.04.11 FOLLOW BASIC MAINTENANCE PROCEDURES

TASK LIST NOTES: None

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION II - SUMMARY OF HOURS

PEACETIME (32 TRAINING DAYS)

ACADEMIC TIME

<u>TITLE</u>	<u>HOURS</u>	<u>ANNEX</u>
BASIC KNOWLEDGE AND SKILLS	27.00	A
INTRODUCTION ANNEX	25.75	B
PRECISION MEASURING ANNEX	17.25	C
CANNON TUBE EVALUATION ANNEX	28.75	D
M45 RECOIL MECHANISM ANNEX	17.00	E
M39 CARRIAGE UPPER ASSEMBLY ANNEX	21.00	F
M39 CARRIAGE LOWER ASSEMBLY ANNEX	35.00	G
ASSEMBLY AND REVIEW ANNEX	21.00	H
DAY IN THE LIFE ANNEX	<u>10.25</u>	I
TOTAL ACADEMIC HOURS:	203.00	

ADMINISTRATIVE TIME

IN PROCESSING	8.00	Z
OUT PROCESSING / GRADUATION	8.00	Z
COMMANDERS TIME	29.00	Z
DRIVERS IMPROVEMENT	<u>8.00</u>	Z
TOTAL ADMINISTRATIVE HOURS:	53.00	

SUMMARY (PEACETIME)

ACADEMIC TIME	203.00
ADMINISTRATIVE TIME	<u>53.00</u>
TOTAL ACADEMIC AND ADMINISTRATIVE TIME:	256.00

MOBILIZATION (26 TRAINING DAYS)

MOBILIZATION - 26 TRAINING DAYS

1. Training will increase to a 10 hour day during mobilization. There is no difference in the academic hours planned in the event of mobilization.

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION III - SCOPE OF ANNEXES

A. BASIC KNOWLEDGE AND SKILLS. Upon completion of this block the student will have a basic knowledge of publications, hazardous materials, basic shop safety, the use of tools, and NAVMC forms.

B. INTRODUCTION ANNEX. Students receive and are evaluated on the history and evolution of artillery, a course overview, theory, collateral equipment, special and common tools of the M198 Howitzer.

C. PRECISION MEASURING ANNEX. Students are taught purging of fire control equipment, reading and use of vernier calipers and torque wrenches.

D. CANNON TUBE EVALUATION ANNEX. Students receive instruction on care and use of Borescope and Pullover Guage. Students are given instructions on factoring Equilivant Full Charge (EFC) measuring wear and tube condemnation criteria.

E. M45 RECOIL MECHANISM ANNEX. Students receive the theory of operation, disassembly, assembly and a cylinder by cylinder breakdown, the required pressure and evaluation on troubleshooting senarios and recoil maintenance and purging procedures.

F. M39 CARRIAGE UPPER ASSEMBLY ANNEX. Students receive instruction on elevation and traversing angle drive units, elevation ball screws and equilibrators and students are evaluated on clutch adjustments and torque limiter maintenance.

G. M39 CARRIAGE LOWER ASSEMBLY ANNEX. Students receive instruction on howitzer hydraulics system, wheel assemblies, brakes system and trail maintenance and evaluated on troubleshooting, and bleeding the brake and hydraulic system.

H. ASSEMBLY AND REVIEW ANNEX. Students use the knowledge and skills learned throughout the course, technical manuals and with limited instructor involvement reassemble the major assemblies and are evaluated on nitrogen charging on the equilibrators. Students also receive instruction on PMCS, fire control alignment and recoil exercising.

I. DAY IN THE LIFE ANNEX. Each student will randomly choose a maintenance scenario. Students will be given their own tools, forms, and technical manuals and are to read the scenario and are required to troubleshoot to determine problem components and perform and document needed parts and repairs. Students then receive an overview of PMCS, scheduled maintenance and evacuation and recovery procedures for howitzers requiring scheduled maintenance and repair.

Z. ADMINISTRATIVE. Administrative processing includes Check in, Check out, Graduation, Drivers Improvment Course, and Commander's time.

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SECTION IV - CONCEPT CARDS

1. A concept card is developed to describe each academic or administrative block of time during a course. These concept cards are then grouped into subject areas, called annexes, which are summarized in Section III. Annexes A through Y are reserved for academic lessons and exams. Annex Z is reserved for administrative time.

2. The following information is contained on each academic concept card in Section IV:

a. Heading. The heading listed at the top of the concept card includes the name of the course, the section of the POI, and the letter and title of the annex to which the lesson or exam is assigned.

b. Lesson/Exam ID. This designator is a unique code assigned to this specific lesson or exam within this course. a. LESSON DESIGNATORS. Each concept card contains a lesson designator with an alphanumeric code, designating the course, subject, and lesson.

c. Hours. This number (carried to the second decimal place) depicts the amount of time required to conduct the lesson or exam once, even if it is presented multiple times to smaller groups of students.

d. Title. This is the title assigned to this lesson or exam. It should refer to the subject matter covered in the lesson or exam when possible.

e. Phase (optional). This is a code depicting the phase (e.g., week, month, etc.) of the course during which this lesson or exam takes place. None

f. Group (optional). This is a code depicting the instructional group or section responsible for teaching or developing this lesson or exam. None

g. Methods,Hours,S:I Ratio. Displayed on the concept card are codes which symbolize the methods of instruction used to present this lesson or exam. Following each method code is the time (in hours) allocated to that method and the student to instructor ratio associated with that period of time. (The hours and ratios depicted on the concept card are used to determine instructor staffing requirements.) The following is a comprehensive list of methods used in this course and their respective codes:

<u>Method</u>	<u>Code</u>
Administrative	ADMIN
Commanders Time	CMDR
Demonstration	D
Guided Discussion	GD
Lecture	L
Practical Application	PA
Performance Exam	X(P)
Written Exam	X(W)

h. Media. Displayed on the concept card are codes which symbolize the media used to support this lesson or exam. The following is a comprehensive list of media used in this course and their respective codes:

<u>Medium</u>	<u>Code</u>
Actual Item/Object	AIO
Chart	C
Computer	CPU
Handout	HO
Mockup	MU
Power Point Presentation	PPP
Television	TV
Video Cassette Recorder	VCR
Videotape	VT

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SECTION IV - CONCEPT CARDS

White Board

WB

i. Learning Objective(s)/Lesson Purpose. Academic concept cards contain either learning objectives or a lesson purpose statement, but not both.

(1) Learning Objective. A learning objective describes a behavior that students are expected to perform following instruction, not necessarily identical to a behavior performed on the job. It also details the conditions under which that behavior is performed and the minimum standards of acceptable performance. A student masters the objective when his or her performance equals or exceeds the standard. (Information concerning student evaluation and mastery is contained in Section V of this POI.)

(a) Terminal Learning Objective (TLO). One, and only one, TLO is written for each task in Section I-B of the POI. The behavior in the TLO duplicates the actual behavior required on the job, modified only if the constraints of the academic environment will not allow it. A TLO should only appear on a concept card for a lesson or exam during which students actually perform the TLO. Each TLO is assigned a numeric designator identical to the designator of its corresponding task in Section I-B, which is identical to the designator of the Individual Training Standard (ITS) from which the task was derived. This designator is located in parentheses at the end of the TLO.

(b) Enabling Learning Objective (ELO). ELOs are designed to teach students the knowledges and skills required for successful performance of the TLOs. Each ELO is placed only on concept cards for lessons or exams during which students actually perform the ELO. Many introductory lessons will contain only ELOs. Each ELO is assigned the same numeric designator as the TLO it supports, followed by a unique combination of one or two letters. This designator is located in parentheses at the end of the ELO. (The first 26 ELOs are assigned the letters "a" through "z" consecutively. If there are more than 26 ELOs, they are assigned the letters "aa" through "az," then "ba" through "bz," etc.)

(2) Lesson Purpose. A lesson purpose statement is recorded on a concept card where no learning objectives are appropriate (e.g., overview, orientation, or enrichment lesson) and the lesson is not to be evaluated. The lesson purpose statement clearly describes the rationale for presenting the lesson.

j. Ammunition Requirements. Whenever a lesson requires the use of ammunition by students or by the instructional staff in support of the lesson, the concept card for that lesson will include a table depicting those requirements. Included for each type of ammunition will be its Department of Defense Identification Code (DODIC), its nomenclature, the average number of rounds used by each student, and the number of support rounds.

k. Notes (optional). This section of the concept card contains any information pertinent to the lesson. Examples of items which may be addressed here are instructor requirements, scheduling notes, special prerequisites, references to tests on which material will be evaluated, etc.

l. References. This section contains the source documents used for development of the lesson or other references which relate to the lesson. At a minimum, it must contain all documents referenced in the learning objectives included on the concept card.

3. The following information is contained on each administrative concept card in Section IV:

a. Heading. The heading listed at the top of the concept card includes the name of the course, the section of the POI, and the fact that this concept card is part of Annex Z, Administrative Time.

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SECTION IV - CONCEPT CARDS

b. Event ID. This designator is a unique code assigned to this administrative event within the course.

c. Hours. This number (carried to the second decimal place) depicts the amount of administrative time required for this event. If this is a repeating event, one concept card may indicate the cumulative hours associated with this event throughout the course.

d. Event. This is a short description of the administrative event.

e. Notes (optional). This section of the concept card contains any information pertinent to the administrative block of time.

4. The following pages contain useful information for locating the learning objectives and lessons that make up this course.

a. Location of Learning Objectives Report. This report lists, by learning objective designator, all learning objectives developed for this course. It also identifies every concept card on which each learning objective is included.

b. Academic and Administrative Summaries. These reports list, by annex, all academic and administrative concept cards in Section IV. Within each annex the concept cards are listed in lesson identifier order. The information provided for each entry includes Identifier, Title, Hours, and Type [Task-oriented lesson (T), Lesson Purpose lesson (LP), Exam (E), or Administrative Time (ADM)]. A subtotal of hours is provided for each annex and for all academic and administrative concept cards. Total POI hours are listed at the end of the Administrative Summary.

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2131.01.01	B	21310B04	Artillery Sets, Chests, and Kits
	B	21310B05	Job Knowledge Test (Tools / PMCS)
	C	21310C02	Precision Measuring Instruments
	C	21310C03	JKT (Nitro/Precision)
	D	21310D03	JPT Pullover Gauge
	G	21310G02	JPT Lower Carriage
	I	21310I01	EOC (Day in the Life)
2131.01.01b	B	21310B04	Artillery Sets, Chests, and Kits
	B	21310B05	Job Knowledge Test (Tools / PMCS)
2131.01.01d	B	21310B04	Artillery Sets, Chests, and Kits
	B	21310B05	Job Knowledge Test (Tools / PMCS)
2131.01.01e	B	21310B04	Artillery Sets, Chests, and Kits
	B	21310B05	Job Knowledge Test (Tools / PMCS)
2131.01.01f	C	21310C02	Precision Measuring Instruments
	C	21310C03	JKT (Nitro/Precision)
	D	21310D03	JPT Pullover Gauge
2131.01.01g	C	21310C02	Precision Measuring Instruments
	C	21310C03	JKT (Nitro/Precision)
	G	21310G02	JPT Lower Carriage
2131.02.01	B	21310B02	Introduction to the M198 Howitzer Theory
	B	21310B05	Job Knowledge Test (Tools / PMCS)
	C	21310C01	Nitrogen Purging and Charging
	C	21310C03	JKT (Nitro/Precision)
	C	21310C04	JPT Nitrogen Purge and Charge
	H	21310H04	PMCS
	I	21310I01	EOC (Day in the Life)
2131.02.01a	H	21310H04	PMCS
2131.02.01b	H	21310H04	PMCS
2131.02.01c	H	21310H04	PMCS
2131.02.01d	C	21310C01	Nitrogen Purging and Charging
	C	21310C03	JKT (Nitro/Precision)
	C	21310C04	JPT Nitrogen Purge and Charge
2131.02.01e	H	21310H04	PMCS
2131.02.01f	H	21310H04	PMCS
2131.02.01g	B	21310B02	Introduction to the M198 Howitzer Theory
	B	21310B05	Job Knowledge Test (Tools / PMCS)
2131.02.01h	B	21310B02	Introduction to the M198 Howitzer Theory
	B	21310B05	Job Knowledge Test (Tools / PMCS)
2131.03.01	B	21310B06	Collateral Equipment
	B	21310B07	JKT (Collateral Equipment)

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
	I	21310I01	EOC (Day in the Life)
2131.03.01a	B	21310B06	Collateral Equipment
2131.03.01b	B	21310B06	Collateral Equipment
	B	21310B07	JKT (Collateral Equipment)
2131.03.01c	B	21310B06	Collateral Equipment
	B	21310B07	JKT (Collateral Equipment)
2131.03.01d	B	21310B06	Collateral Equipment
2131.03.02	D	21310D01	Cannon Tube Evaluation
	D	21310D02	JKT Cannon Tube Evaluation
	D	21310D03	JPT Pullover Gauge
	D	21310D04	Repair M199 Cannon
	I	21310I01	EOC (Day in the Life)
2131.03.02a	D	21310D04	Repair M199 Cannon
2131.03.02b	D	21310D04	Repair M199 Cannon
2131.03.02c	D	21310D04	Repair M199 Cannon
2131.03.02d	D	21310D04	Repair M199 Cannon
2131.03.02e	D	21310D01	Cannon Tube Evaluation
	D	21310D02	JKT Cannon Tube Evaluation
	D	21310D03	JPT Pullover Gauge
2131.03.02f	D	21310D01	Cannon Tube Evaluation
	D	21310D02	JKT Cannon Tube Evaluation
	D	21310D03	JPT Pullover Gauge
2131.03.02g	D	21310D01	Cannon Tube Evaluation
	D	21310D02	JKT Cannon Tube Evaluation
	D	21310D03	JPT Pullover Gauge
2131.03.02h	D	21310D01	Cannon Tube Evaluation
	D	21310D02	JKT Cannon Tube Evaluation
	D	21310D03	JPT Pullover Gauge
2131.03.03	E	21310E01	Repair M45 Recoil Mechanism
	E	21310E02	JPT M45 Recoil Mechanism
	H	21310H01	Installation of components
	H	21310H02	JPT (Nitrogen Charging)
	I	21310I01	EOC (Day in the Life)
2131.03.03a	E	21310E01	Repair M45 Recoil Mechanism
	E	21310E02	JPT M45 Recoil Mechanism
2131.03.03b	E	21310E01	Repair M45 Recoil Mechanism
2131.03.03c	H	21310H01	Installation of components

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2131.03.03d	H	21310H01	Installation of components
2131.03.03e	E	21310E02	JPT M45 Recoil Mechanism
2131.03.03f	E	21310E02	JPT M45 Recoil Mechanism
2131.03.04	F	21310F01	Repair Upper Carriage
	F	21310F02	JPT Upper Carriage
	G	21310G01	Repair Lower Carriage
	G	21310G02	JPT Lower Carriage
	H	21310H01	Installation of components
	H	21310H02	JPT (Nitrogen Charging)
	H	21310H03	Fire Control PMCS
	I	21310I01	EOC (Day in the Life)
2131.03.04a	F	21310F01	Repair Upper Carriage
	F	21310F02	JPT Upper Carriage
2131.03.04b	F	21310F01	Repair Upper Carriage
	F	21310F02	JPT Upper Carriage
2131.03.04c	F	21310F01	Repair Upper Carriage
	F	21310F02	JPT Upper Carriage
2131.03.04d	F	21310F01	Repair Upper Carriage
	F	21310F02	JPT Upper Carriage
2131.03.04e	G	21310G01	Repair Lower Carriage
2131.03.04f	G	21310G01	Repair Lower Carriage
	G	21310G02	JPT Lower Carriage
2131.03.04g	G	21310G01	Repair Lower Carriage
	G	21310G02	JPT Lower Carriage
2131.03.04h	G	21310G01	Repair Lower Carriage
	G	21310G02	JPT Lower Carriage
2131.03.04i	G	21310G01	Repair Lower Carriage
	G	21310G02	JPT Lower Carriage
2131.03.04l	H	21310H03	Fire Control PMCS
2131.03.04m	H	21310H03	Fire Control PMCS
2131.03.04n	H	21310H03	Fire Control PMCS
2131.03.04o	H	21310H03	Fire Control PMCS
2131.03.04p	H	21310H03	Fire Control PMCS
2131.03.04q	H	21310H03	Fire Control PMCS
2131.03.04r	H	21310H03	Fire Control PMCS

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2131.03.04u	F	21310F01	Repair Upper Carriage
2131.03.04v	F	21310F01	Repair Upper Carriage
	H	21310H02	JPT (Nitrogen Charging)
2131.03.04w	H	21310H01	Installation of components
2131.04.10	I	21310I01	EOC (Day in the Life)
	A	21XXAA05	Shop Safety
	A	21XXAA06	Hazard Communication
	A	21XXAA07	Common Tools
	A	21XXAA09	Job Knowledge Test 21XXAA01 Through 21XXAA07
2131.04.10a	A	21XXAA07	Common Tools
2131.04.10b	A	21XXAA07	Common Tools
2131.04.10c	A	21XXAA07	Common Tools
2131.04.10d	A	21XXAA07	Common Tools
2131.04.10e	A	21XXAA06	Hazard Communication
2131.04.10f	A	21XXAA06	Hazard Communication
2131.04.10g	A	21XXAA05	Shop Safety
2131.04.10h	A	21XXAA05	Shop Safety
2131.04.10i	A	21XXAA05	Shop Safety
2131.04.10j	A	21XXAA05	Shop Safety
2131.04.11	I	21310I01	EOC (Day in the Life)
	A	21XXAA01	Marine Corps Publications
	A	21XXAA02	Maintenance Administration
	A	21XXAA03	Modifications
	A	21XXAA04	Calibrations
	A	21XXAA09	Job Knowledge Test 21XXAA01 Through 21XXAA07
2131.04.11a	A	21XXAA01	Marine Corps Publications
2131.04.11b	A	21XXAA01	Marine Corps Publications
2131.04.11c	A	21XXAA01	Marine Corps Publications
2131.04.11d	A	21XXAA04	Calibrations
2131.04.11e	A	21XXAA04	Calibrations
2131.04.11f	A	21XXAA04	Calibrations
2131.04.11g	A	21XXAA03	Modifications
2131.04.11h	A	21XXAA03	Modifications

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

<u>LO</u>	<u>ANNEX</u>	<u>LESSON_ID</u>	<u>LESSON_TITLE</u>
2131.04.11i	A	21XXAA03	Modifications
2131.04.11j	A	21XXAA02	Maintenance Administration

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

ACADEMIC SUMMARY

IDENTIFIER	TITLE	HRS	TYPE
ANNEX A - BASIC KNOWLEDGE AND SKILLS			
21XXAA01	Marine Corps Publications	6.00	T
21XXAA02	Maintenance Administration	9.00	T
21XXAA03	Modifications	1.00	T
21XXAA04	Calibrations	1.00	T
21XXAA05	Shop Safety	1.00	T
21XXAA06	Hazard Communication	1.00	T
21XXAA07	Common Tools	3.00	T
21XXAA08	Troubleshooting	1.00	LP
21XXAA09	Job Knowledge Test 21XXAA01 Through 21XXAA07	2.00	E
21XXAA10	Movement to School	0.50	LP
21XXAA11	Course Introduction	0.50	LP
21XXAA12	Maintenance Management Overview	1.00	LP
		Annex Total :	27.00
ANNEX B - INTRODUCTION ANNEX			
21310B01	Course Introduction	2.50	LP
21310B02	Introduction to the M198 Howitzer Theory	1.75	T
21310B03	Ordnance Museum Tour (History of Artillery and Theory)	3.75	LP
21310B04	Artillery Sets, Chests, and Kits	5.00	T
21310B05	Job Knowledge Test (Tools / PMCS)	2.00	E
21310B06	Collateral Equipment	5.00	T
21310B07	JKT (Collateral Equipment)	2.00	E
21310B08	Tool Turn in/ (EOC) Counseling	3.75	LP
		Annex Total :	25.75
ANNEX C - PRECISION MEASURING ANNEX			
21310C01	Nitrogen Purging and Charging	5.00	T
21310C02	Precision Measuring Instruments	4.00	T
21310C03	JKT (Nitro/Precision)	2.00	E
21310C04	JPT Nitrogen Purge and Charge	6.25	E
		Annex Total :	17.25
ANNEX D - CANNON TUBE EVALUATION ANNEX			
21310D01	Cannon Tube Evaluation	9.75	T
21310D02	JKT Cannon Tube Evaluation	1.50	E
21310D03	JPT Pullover Gauge	9.75	E
21310D04	Repair M199 Cannon	7.75	T
		Annex Total :	28.75
ANNEX E - M45 RECOIL MECHANISM ANNEX			
21310E01	Repair M45 Recoil Mechanism	10.00	T
21310E02	JPT M45 Recoil Mechanism	7.00	E
		Annex Total :	17.00

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

ACADEMIC SUMMARY

IDENTIFIER	TITLE	HRS	TYPE
ANNEX F - M39 CARRIAGE UPPER ASSEMBLY ANNEX			
21310F01	Repair Upper Carriage	14.00	T
21310F02	JPT Upper Carriage	7.00	E
		Annex Total :	21.00
ANNEX G - M39 CARRIAGE LOWER ASSEMBLY ANNEX			
21310G01	Repair Lower Carriage	28.00	T
21310G02	JPT Lower Carriage	7.00	E
		Annex Total :	35.00
ANNEX H - ASSEMBLY AND REVIEW ANNEX			
21310H01	Installation of components	7.00	T
21310H02	JPT (Nitrogen Charging)	7.00	E
21310H03	Fire Control PMCS	3.25	T
21310H04	PMCS	3.75	T
		Annex Total :	21.00
ANNEX I - DAY IN THE LIFE ANNEX			
21310I01	EOC (Day in the Life)	10.25	E
		Annex Total :	10.25
		Total Academic Hours :	203.00

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

ADMINISTRATIVE SUMMARY

<u>IDENTIFIER</u>	<u>TITLE</u>	<u>HRS</u>	<u>TYPE</u>
ANNEX Z - ADMINISTRATIVE			
21310Z01	In Processing	8.00	ADM
21310Z02	Out Processing / Graduation	8.00	ADM
21310Z03	Commanders Time	29.00	ADM
21310Z04	Drivers Improvement	8.00	ADM

Total Administrative Hours : 53.00

Total POI Hours : 256.00

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA01

HOURS: 6.00

TITLE: Marine Corps Publications

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.50	10:1
PA	4.50	10:1

MEDIA: AIO, CPU, HO, PPP, WB

TERMINAL LEARNING OBJECTIVE(S):

1. Given equipment repair records and forms and the references, follow basic maintenance procedures, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11)

ENABLING LEARNING OBJECTIVE(S):

1. Given equipment repair records and forms and the references, identify the types of publications, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11a)
2. Given equipment repair records and forms and the references, know how to use publications, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11b)
3. Given equipment repair records and forms and the references, identify the purpose of the NAVMC form 10772, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11c)

REFERENCE

REFERENCE #

1. Table of Marine Corps Ground Equipment Resource Reporting (MCGERR)	MBUL 3000
2. MIMMS Field Procedures Manual	MCO P4790.2_
3. The Marine Corps Technical Publications System	MCO P5215.17
4. Stock List 1-2	SL-1-2
5. Stock List 1-3	SL-1-3
6. Organizational and Intermediate Maintenance Rifle, 5.56-MM, M16A2 W/E	TM 05538C-23&P/2A
7. Ground Equipment Records Procedures	TM 4700-15/1_
8. MIMMS AIS Field Maintenance Procedures	UM 4790-5
9. Publication Library Management System	UM-PLMS

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA01

HOURS: 6.00

TITLE: Marine Corps Publications

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA02

HOURS: 9.00

TITLE: Maintenance Administration

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.00	10:1
L	3.00	10:1
PA	5.00	10:1

MEDIA: AIO, CPU, HO, PPP, WB

TERMINAL LEARNING OBJECTIVE(S):

1. Given equipment repair records and forms and the references, follow basic maintenance procedures, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11)

ENABLING LEARNING OBJECTIVE(S):

1. Given equipment repair records and forms and the references, complete selected NAVMC forms, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11j)

REFERENCE

REFERENCE #

- | | |
|---|---------------|
| 1. Federal Logistics Database | FEDLOG |
| 2. Consumer Level Supply Policy Manual | MCO P4400.150 |
| 3. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 4. Stock List 1-2 | SL-1-2 |
| 5. Stock List 1-3 | SL-1-3 |
| 6. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 7. MIMMS AIS Field Maintenance Procedures | UM 4790-5 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA03

HOURS: 1.00

TITLE: Modifications

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	10:1
PA	0.50	10:1

MEDIA: CPU, PPP, WB

TERMINAL LEARNING OBJECTIVE(S):

1. Given equipment repair records and forms and the references, follow basic maintenance procedures, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11)

ENABLING LEARNING OBJECTIVE(S):

1. Given equipment repair records and forms and the references, identify the types of modification categories, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11g)
2. Given equipment repair records and forms and the references, identify equipment requiring modification, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11h)
3. Given equipment repair records and forms and the references, identify modification records, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11i)

REFERENCE

REFERENCE #

- | | |
|--|---------------|
| 1. Applicable Equipment Modification Instruction | APPLICABLE MI |
| 2. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 3. Test Set Night Vision Sight AN/TAM-3A | MI-08121-45/1 |
| 4. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 5. MIMMS AIS Field Maintenance Procedures | UM 4790-5 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA04

HOURS: 1.00

TITLE: Calibrations

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	10:1
PA	0.50	10:1

MEDIA: CPU, PPP, WB

TERMINAL LEARNING OBJECTIVE(S):

1. Given equipment repair records and forms and the references, follow basic maintenance procedures, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11)

ENABLING LEARNING OBJECTIVE(S):

1. Given equipment repair records and forms and the references, identify the equipment that requires calibration, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11d)
2. Given equipment repair records and forms and the references, identify calibration control records, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11e)
3. Given equipment repair records and forms and the references, identify equipment calibration intervals, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11f)

REFERENCE

REFERENCE #

- | | |
|---|---------------|
| 1. Applicable Equipment Technical Publications | APPLICABLE TM |
| 2. Calibration Requirements Marine Corps TMDE Calibration and Maintenance Program | TI 4733-15/1_ |
| 3. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 4. MIMMS AIS Field Maintenance Procedures | UM 4790-5 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA05

HOURS: 1.00

TITLE: Shop Safety

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	10:1

MEDIA: CPU, HO, PPP, WB

TERMINAL LEARNING OBJECTIVE(S):

1. Given common tools, power tools, and the references, follow basic shop procedures, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10)

ENABLING LEARNING OBJECTIVE(S):

1. Given common tools, power tools, common precision measuring tools, and the references, observe safety regulations, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10g)
2. Given common tools, power tools, common precision measuring tools, and the references, identify Personal Protective Equipment, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10h)
3. Given common tools, power tools, common precision measuring tools, and the references, identify LASER safety, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10i)
4. Given common tools, power tools, common precision measuring tools, and the references, identify radiation safety, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10j)

REFERENCE

REFERENCE #

- | | |
|---|--------------|
| 1. Marine Corps Ground Occupational Safety and Health Program | MCO 5100.8 |
| 2. Marine Corps Radiation Safety Program | MCO 5104.3 |
| 3. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 4. Control of Hazards to Health from Laser Radiation | TB MED 524 |
| 5. Special Handling Considerations Tritium Fire Control | TI 5104-15/2 |
| 6. Use and Care of Hand Tools and Measuring Tools | TM 9-243 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA06

HOURS: 1.00

TITLE: Hazard Communication

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	0.50	10:1
L	0.50	10:1

MEDIA: CPU, HO, PPP, WB

TERMINAL LEARNING OBJECTIVE(S):

1. Given common tools, power tools, and the references, follow basic shop procedures, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10)

ENABLING LEARNING OBJECTIVE(S):

1. Given common tools, power tools, common precision measuring tools, and the references, utilize Material Safety Data Sheets, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10e)
2. Given common tools, power tools, common precision measuring tools, and the references, identify spill response procedures, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10f)

REFERENCE

REFERENCE #

1. Department of Defense Federal Hazard Communication Training Program Students's Workbook DOD 6050.5-W
2. Marine Corps Ground Occupational Safety and Health Program MCO 5100.8

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA07

HOURS: 3.00

TITLE: Common Tools

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.00	10:1
L	0.50	10:1
PA	1.50	10:1

MEDIA: AIO, CPU, HO, PPP, WB

TERMINAL LEARNING OBJECTIVE(S):

1. Given common tools, power tools, and the references, follow basic shop procedures, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10)

ENABLING LEARNING OBJECTIVE(S):

1. Given common tools, power tools, common precision measuring tools, and the references, identify hand tools, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10a)
2. Given common tools, power tools, common precision measuring tools, and the references, use common tools, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10b)
3. Given common tools, power tools, common precision measuring tools, and the references, perform preventative maintenance on tools, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10c)
4. Given common tools, power tools, common precision measuring tools, and the references, maintain accountability for tools, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10d)

REFERENCE

REFERENCE #

- | | |
|---|-----------------|
| 1. Applicable Stock List SL-3 | APPLICABLE SL-3 |
| 2. Applicable Equipment Technical Publications | APPLICABLE TM |
| 3. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 4. Use and Care of Hand Tools and Measuring Tools | TM 9-243 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA08

HOURS: 1.00

TITLE: Troubleshooting

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	10:1

MEDIA: CPU, PPP, WB

LESSON PURPOSE:

Trouble shooting is taught here to give the students the basic steps and processes that are used in finding and correcting a problem within a particular piece of damaged equipment.

REFERENCE

REFERENCE #

1. Applicable Equipment Technical Publications

APPLICABLE TM

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

EXAM ID: 21XXAA09

HOURS: 2.00

TITLE: Job Knowledge Test 21XXAA01 Through 21XXAA07

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.10	10:1
X(W)	1.90	10:1

MEDIA: AIO, WB

TERMINAL LEARNING OBJECTIVE(S):

1. Given common tools, power tools, and the references, follow basic shop procedures, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10)
2. Given equipment repair records and forms and the references, follow basic maintenance procedures, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11)

REFERENCE

REFERENCE #

- | | |
|--|-----------------|
| 1. Applicable Equipment Modification Instruction | APPLICABLE MI |
| 2. Applicable Stock List SL-3 | APPLICABLE SL-3 |
| 3. Applicable Equipment Technical Publications | APPLICABLE TM |
| 4. Department of Defense Federal Hazard Communication Training Program Students's Workbook | DOD 6050.5-W |
| 5. Federal Logistics Database | FEDLOG |
| 6. Table of Marine Corps Ground Equipment Resource Reporting (MCGERR) | MBUL 3000 |
| 7. Marine Corps Ground Occupational Safety and Health Program | MCO 5100.8 |
| 8. Marine Corps Radiation Safety Program | MCO 5104.3 |
| 9. Consumer Level Supply Policy Manual | MCO P4400.150 |
| 10. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 11. The Marine Corps Technical Publications System | MCO P5215.17 |
| 12. Test Set Night Vision Sight AN/TAM-3A | MI-08121-45/1 |
| 13. Stock List 1-2 | SL-1-2 |
| 14. Stock List 1-3 | SL-1-3 |
| 15. Control of Hazards to Health from Laser Radiation | TB MED 524 |
| 16. Calibration Requirements Marine Corps TMDE Calibration and | TI 4733-15/1_ |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

EXAM ID: 21XXAA09

HOURS: 2.00

TITLE: Job Knowledge Test 21XXAA01 Through 21XXAA07

Maintenance Program

- | | |
|---|-------------------|
| 17. Special Handling Considerations Tritium Fire Control | TI 5104-15/2 |
| 18. Organizational and Intermediate Maintenance Rifle, 5.56-MM, M16A2 W/E | TM 05538C-23&P/2A |
| 19. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 20. Use and Care of Hand Tools and Measuring Tools | TM 9-243 |
| 21. MIMMS AIS Field Maintenance Procedures | UM 4790-5 |
| 22. Publication Library Management System | UM-PLMS |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA10

HOURS: 0.50

TITLE: Movement to School

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
ADMIN	0.50	10:1

MEDIA: AIO

LESSON PURPOSE:

The Marines will march about 1/2 mile, from Buliding 3144 to Bld 5217. This will be after 21XXAA09.

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA11

HOURS: 0.50

TITLE: Course Introduction

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
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L	0.50	10:1
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MEDIA: CPU, PPP

LESSON PURPOSE:

This class will cover a general overview of the course content, testing procedures including the end of course exam, and initial counseling.

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX A - BASIC KNOWLEDGE AND SKILLS

LESSON ID: 21XXAA12

HOURS: 1.00

TITLE: Maintenance Manangement Overview

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	10:1

MEDIA: CPU, PPP

LESSON PURPOSE:

This is a 1 hour period of instruction with 30 min on TD-2 and 30 min on TD-5. The purpose is to give the basic student some insight as to how maintenance management of ground ordnance equipment is conducted within the Marine Corps, what maintenance is, the elements of maintenance, maintenance management sub systems, and the categories of maintenance.

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

LESSON ID: 21310B01

HOURS: 2.50

TITLE: Course Introduction

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	2.50	10:1

MEDIA: CPU, PPP

LESSON PURPOSE:

The Marines will receive a welcome aboard, and be issued the MCI 0820D upon arriving at the school. This will last 1 hour. The next day, the course introduction will continue covering an overview of the course, and a tour of the bay. An introduction of safety will begin during the overview and the students will be expected to follow the safety procedures while touring the bay.

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

LESSON ID: 21310B02

HOURS: 1.75

TITLE: Introduction to the M198 Howitzer Theory

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.00	10:1
L	0.75	10:1

MEDIA: AIO, HO, TV, VCR, VT

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform M198 155MM howitzer PMCS, to ensure that it is fully operational per the references. (2131.02.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, identify the nomenclature of components on the M198 howitzer, to ensure that it is fully operational per the references. (2131.02.01g)
2. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, state the safe operating procedures of the M198 howitzer, to ensure that it is fully operational per the references. (2131.02.01h)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 3. Operators Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-10 |
| 4. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 5. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 6. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

LESSON ID: 21310B03

HOURS: 3.75

TITLE: Ordnance Museum Tour (History of Artillery and Theory)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
GD	3.75	10:1

MEDIA: TV, VCR, VT

LESSON PURPOSE:

Students will view 3 films in the museum's theater (1) on the history and evolution of artillery, (2) development of fire power, (3) documentary from Dr. Atwater on towed artillery. Students then view various artillery rounds used and their development and will finish with a tour of the outside towed artillery museum pieces relating to the four main groups previously learned during the introduction.

Film titles:

- 1- Tales of the Gun - Documentary by the History Channel
- 2- Big Guns - Hosted by George C. Scott
- 3- Brute Force (Artillery) Hosted by Gerald McRaney

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

LESSON ID: 21310B04

HOURS: 5.00

TITLE: Artillery Sets, Chests, and Kits

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.00	10:1
L	1.00	10:1
PA	3.00	10:2

MEDIA: AIO, CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, maintain M198 155MM howitzer tools, to ensure tools are serviceable per the references. (2131.01.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, use special tools, to ensure tools are serviceable per the references. (2131.01.01b)
2. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, dispose of unserviceable tools, to ensure tools are serviceable per the references. (2131.01.01d)
3. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, procure tools for chests, sets, and kits, to ensure tools are serviceable per the references. (2131.01.01e)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Applicable Stock List SL-3 | APPLICABLE SL-3 |
| 2. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 3. Purging Kit, Fire Control | SC 4931-95-CL-J54 |
| 4. MS, Pullover Gauge, Complete (KIT) | TM 00640A-13&P/1 |
| 5. Recoil Exerciser for M198 155MM Howitzer | TM 00999-23&P/1 |
| 6. Maintenance Manual for Borescope M3 | TM 08522A-13&P |
| 7. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

LESSON ID: 21310B04

HOURS: 5.00

TITLE: Artillery Sets, Chests, and Kits

- | | |
|---|-------------------|
| 8. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 9. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |
| 10. Use and Care of Hand Tools and Measuring Tools | TM 9-243 |
| 11. Pump Kit Hydraulic Oil Gun | TM 9-4933-201-15P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

EXAM ID: 21310B05

HOURS: 2.00

TITLE: Job Knowledge Test (Tools / PMCS)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
X(W)	2.00	10:1

MEDIA: AIO, HO, TV, VCR

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, maintain M198 155MM howitzer tools, to ensure tools are serviceable per the references. (2131.01.01)
2. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform M198 155MM howitzer PMCS, to ensure that it is fully operational per the references. (2131.02.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, use special tools, to ensure tools are serviceable per the references. (2131.01.01b)
2. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, dispose of unserviceable tools, to ensure tools are serviceable per the references. (2131.01.01d)
3. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, procure tools for chests, sets, and kits, to ensure tools are serviceable per the references. (2131.01.01e)
4. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, identify the nomenclature of components on the M198 howitzer, to ensure that it is fully operational per the references. (2131.02.01g)
5. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, state the safe operating procedures of the M198 howitzer, to ensure that it is fully operational per the references. (2131.02.01h)

REFERENCE

REFERENCE #

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

EXAM ID: 21310B05

HOURS: 2.00

TITLE: Job Knowledge Test (Tools / PMCS)

- | | |
|---|--------------------|
| 1. Applicable Stock List SL-3 | APPLICABLE SL-3 |
| 2. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 3. Purging Kit, Fire Control | SC 4931-95-CL-J54 |
| 4. MS, Pullover Gauge, Complete (KIT) | TM 00640A-13&P/1 |
| 5. Recoil Exerciser for M198 155MM Howitzer | TM 00999-23&P/1 |
| 6. Maintenance Manual for Borescope M3 | TM 08522A-13&P |
| 7. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 8. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 9. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 10. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |
| 11. Use and Care of Hand Tools and Measuring Tools | TM 9-243 |
| 12. Pump Kit Hydraulic Oil Gun | TM 9-4933-201-15P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

LESSON ID: 21310B06

HOURS: 5.00

TITLE: Collateral Equipment

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.75	10:1
L	1.50	10:1
PA	1.75	10:2

MEDIA: C, HO, TV, VCR, VT

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, maintain M198 howitzer collateral equipment, so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify the operation of the M1A1 Gunners Quadrant, so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01b)
2. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, perform serviceability tests on the M1A1 Gunners Quadrant, so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01c)
3. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, troubleshoot gun data display unit (GDU), so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01a)
4. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, maintain vehicle tail light, so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01d)

NOTE(S):

During this class the instructor will cover the basic overview of an artillery battery and how these items are used in the battery.

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

LESSON ID: 21310B06

HOURS: 5.00

TITLE: Collateral Equipment

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

EXAM ID: 21310B07

HOURS: 2.00

TITLE: JKT (Collateral Equipment)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
X(W)	2.00	10:1

MEDIA: C, HO, TV, VCR, VT

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, maintain M198 howitzer collateral equipment, so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify the operation of the M1A1 Gunners Quadrant, so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01b)
2. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, perform serviceability tests on the M1A1 Gunners Quadrant, so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01c)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX B - INTRODUCTION ANNEX

LESSON ID: 21310B08

HOURS: 3.75

TITLE: Tool Turn in/ (EOC) Counseling

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
PA	3.75	10:2

MEDIA: AIO

LESSON PURPOSE:

During this period of instruction the Marines will conduct PMCS and inventory their tool, sets, and kits prior to being turned in. They will also receive counseling.

NOTE(S):

This class is done after the EOC, before graduation.

REFERENCE

REFERENCE #

- | | |
|--|-----------------|
| 1. Applicable Stock List SL-3 | APPLICABLE SL-3 |
| 2. Marine Corps Individual Records Administration Manual (Short Title: IRAM) | MCO P1070.12_ |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX C - PRECISION MEASURING ANNEX

LESSON ID: 21310C01

HOURS: 5.00

TITLE: Nitrogen Purging and Charging

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.00	10:1
L	1.00	10:1
PA	3.00	10:2

MEDIA: AIO, CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform M198 155MM howitzer PMCS, to ensure that it is fully operational per the references. (2131.02.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform procedures for purging and charging, to ensure that it is fully operational per the references. (2131.02.01d)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX C - PRECISION MEASURING ANNEX

LESSON ID: 21310C02

HOURS: 4.00

TITLE: Precision Measuring Instruments

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.00	10:1
L	1.00	10:1
PA	2.00	10:2

MEDIA: AIO, CPU, HO, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, maintain M198 155MM howitzer tools, to ensure tools are serviceable per the references. (2131.01.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, operate the vernier caliper, to ensure tools are serviceable per the references. (2131.01.01f)
2. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, operate the torque wrench, to ensure tools are serviceable per the references. (2131.01.01g)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 2. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |
| 4. Use and Care of Hand Tools and Measuring Tools | TM 9-243 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX C - PRECISION MEASURING ANNEX

EXAM ID: 21310C03

HOURS: 2.00

TITLE: JKT (Nitro/Precision)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.10	10:1
X(W)	1.90	10:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, maintain M198 155MM howitzer tools, to ensure tools are serviceable per the references. (2131.01.01)
2. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform M198 155MM howitzer PMCS, to ensure that it is fully operational per the references. (2131.02.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, operate the vernier caliper, to ensure tools are serviceable per the references. (2131.01.01f)
2. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, operate the torque wrench, to ensure tools are serviceable per the references. (2131.01.01g)
3. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform procedures for purging and charging, to ensure that it is fully operational per the references. (2131.02.01d)

REFERENCE

REFERENCE #

- | | |
|--|--------------------|
| 1. Purging Kit, Fire Control | SC 4931-95-CL-J54 |
| 2. MS, Pullover Gauge, Complete (KIT) | TM 00640A-13&P/1 |
| 3. Recoil Exerciser for M198 155MM Howitzer | TM 00999-23&P/1 |
| 4. Maintenance Manual for Borescope M3 | TM 08522A-13&P |
| 5. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 6. Organizational Maintenance Manual, Howitzer, Medium, Towed, | TM 9-1025-211-20&P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX C - PRECISION MEASURING ANNEX

EXAM ID: 21310C03

HOURS: 2.00

TITLE: JKT (Nitro/Precision)

M198 155MM

- | | |
|--|-------------------|
| 7. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 8. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance
Parts | TM 9-1025-211-34P |
| 9. Pump Kit Hydraulic Oil Gun | TM 9-4933-201-15P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX C - PRECISION MEASURING ANNEX

EXAM ID: 21310C04

HOURS: 6.25

TITLE: JPT Nitrogen Purge and Charge

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.25	10:1
X(P)	6.00	10:2

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform M198 155MM howitzer PMCS, to ensure that it is fully operational per the references. (2131.02.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform procedures for purging and charging, to ensure that it is fully operational per the references. (2131.02.01d)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Purging Kit, Fire Control | SC 4931-95-CL-J54 |
| 2. MS, Pullover Gauge, Complete (KIT) | TM 00640A-13&P/1 |
| 3. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 5. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX D - CANNON TUBE EVALUATION ANNEX

LESSON ID: 21310D01

HOURS: 9.75

TITLE: Cannon Tube Evaluation

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	3.00	10:1
PA	6.75	10:2

MEDIA: CPU, HO, PPP, TV, VCR, VT

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M199 cannon tube assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify cannon tube serviceability/deterioration/ condemnation criteria for the M199 cannon assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02e)
2. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, perform measurement of bore diameter using the pullover gauge, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02f)
3. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, evaluate the land and grooves of cannon tubes using the borescope, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02g)
4. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify the required entries in the NAVMC 10558 when evaluating cannon tubes, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02h)

REFERENCE

1. MS, Pullover Gauge, Complete (KIT)

REFERENCE #

TM 00640A-13&P/1

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX D - CANNON TUBE EVALUATION ANNEX

LESSON ID: 21310D01

HOURS: 9.75

TITLE: Cannon Tube Evaluation

- | | |
|---|--------------------|
| 2. Maintenance Manual for Borescope M3 | TM 08522A-13&P |
| 3. Cannon Tube Evaluation | TM 9-1000-202-14 |
| 4. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 5. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 6. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX D - CANNON TUBE EVALUATION ANNEX

EXAM ID: 21310D02

HOURS: 1.50

TITLE: JKT Cannon Tube Evaluation

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	10:1
X(W)	1.00	10:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M199 cannon tube assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify cannon tube serviceability/deterioration/ condemnation criteria for the M199 cannon assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02e)
2. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, perform measurement of bore diameter using the pullover gauge, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02f)
3. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, evaluate the land and grooves of cannon tubes using the borescope, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02g)
4. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify the required entries in the NAVMC 10558 when evaluating cannon tubes, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02h)

REFERENCE

1. MS, Pullover Gauge, Complete (KIT)

REFERENCE #

TM 00640A-13&P/1

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX D - CANNON TUBE EVALUATION ANNEX

EXAM ID: 21310D02

HOURS: 1.50

TITLE: JKT Cannon Tube Evaluation

- | | |
|---|--------------------|
| 2. Maintenance Manual for Borescope M3 | TM 08522A-13&P |
| 3. Cannon Tube Evaluation | TM 9-1000-202-14 |
| 4. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 5. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 6. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX D - CANNON TUBE EVALUATION ANNEX

EXAM ID: 21310D03

HOURS: 9.75

TITLE: JPT Pullover Gauge

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.25	10:1
X(P)	9.50	10:2

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M199 cannon tube assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02)
2. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, maintain M198 155MM howitzer tools, to ensure tools are serviceable per the references. (2131.01.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify cannon tube serviceability/deterioration/ condemnation criteria for the M199 cannon assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02e)
2. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, perform measurement of bore diameter using the pullover gauge, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02f)
3. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, evaluate the land and grooves of cannon tubes using the borescope, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02g)
4. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify the required entries in the NAVMC 10558 when evaluating cannon tubes, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02h)

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX D - CANNON TUBE EVALUATION ANNEX

EXAM ID: 21310D03

HOURS: 9.75

TITLE: JPT Pullover Gauge

5. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, operate the vernier caliper, to ensure tools are serviceable per the references. (2131.01.01f)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Applicable Stock List SL-3 | APPLICABLE SL-3 |
| 2. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 3. Purging Kit, Fire Control | SC 4931-95-CL-J54 |
| 4. MS, Pullover Gauge, Complete (KIT) | TM 00640A-13&P/1 |
| 5. Recoil Exerciser for M198 155MM Howitzer | TM 00999-23&P/1 |
| 6. Maintenance Manual for Borescope M3 | TM 08522A-13&P |
| 7. Cannon Tube Evaluation | TM 9-1000-202-14 |
| 8. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 9. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 10. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |
| 11. Pump Kit Hydraulic Oil Gun | TM 9-4933-201-15P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX D - CANNON TUBE EVALUATION ANNEX

LESSON ID: 21310D04

HOURS: 7.75

TITLE: Repair M199 Cannon

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	0.75	10:1
L	1.00	10:1
PA	6.00	10:2

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M199 cannon tube assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify unserviceable components of the M199 cannon tube assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02a)
2. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, remove / install the M199 cannon tube assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02b)
3. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble the breech mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02c)
4. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair / replace cannon tube assembly parts, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02d)

REFERENCE

REFERENCE #

- | | |
|--|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, | TM 9-1025-211-20&P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX D - CANNON TUBE EVALUATION ANNEX

LESSON ID: 21310D04

HOURS: 7.75

TITLE: Repair M199 Cannon

M198 155MM

3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance TM 9-1025-211-34
4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance
Parts TM 9-1025-211-34P
5. Use and Care of Hand Tools and Measuring Tools TM 9-243

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX E - M45 RECOIL MECHANISM ANNEX

LESSON ID: 21310E01

HOURS: 10.00

TITLE: Repair M45 Recoil Mechanism

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.00	10:1
L	1.00	10:1
PA	8.00	10:2

MEDIA: AIO, MU

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M45 recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify unserviceable recoil components, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03a)
2. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble and reassemble the M45 recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03b)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX E - M45 RECOIL MECHANISM ANNEX

EXAM ID: 21310E02

HOURS: 7.00

TITLE: JPT M45 Recoil Mechanism

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.10	10:1
X(P)	6.90	10:2

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M45 recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify unserviceable recoil components, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03a)
2. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, purge recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03e)
3. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, charge recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03f)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX F - M39 CARRIAGE UPPER ASSEMBLY ANNEX

LESSON ID: 21310F01

HOURS: 14.00

TITLE: Repair Upper Carriage

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	2.00	10:1
L	2.00	10:1
PA	10.00	10:2

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M39 carriage assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify unserviceable carriage components, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04a)
2. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble elevation mechanism, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04b)
3. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble traversing mechanism, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04c)
4. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble top carriage, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04d)
5. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, remove / replace equilibrators, so that all

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX F - M39 CARRIAGE UPPER ASSEMBLY ANNEX

LESSON ID: 21310F01

HOURS: 14.00

TITLE: Repair Upper Carriage

required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04u)

6. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, charge equilibrators, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04v)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX F - M39 CARRIAGE UPPER ASSEMBLY ANNEX

EXAM ID: 21310F02

HOURS: 7.00

TITLE: JPT Upper Carriage

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.25	10:1
X(P)	6.75	10:2

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M39 carriage assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, identify unserviceable carriage components, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04a)
2. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble elevation mechanism, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04b)
3. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble traversing mechanism, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04c)
4. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble top carriage, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04d)

REFERENCE

REFERENCE #

1. Lubrication Order, Howitzer, Medium Towed, 155MM M198

LO 9-1025-211-13



TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX F - M39 CARRIAGE UPPER ASSEMBLY ANNEX

EXAM ID: 21310F02

HOURS: 7.00

TITLE: JPT Upper Carriage

2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM TM 9-1025-211-20&P
3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance TM 9-1025-211-34
4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts TM 9-1025-211-34P

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX G - M39 CARRIAGE LOWER ASSEMBLY ANNEX

LESSON ID: 21310G01

HOURS: 28.00

TITLE: Repair Lower Carriage

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	1.50	10:1
L	2.00	10:1
PA	24.50	10:2

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M39 carriage assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble hydraulic system, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04e)
2. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble wheel assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04f)
3. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble brake system, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04g)
4. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble trails, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04h)
5. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair / replace carriage parts, so that all required maintenance will be identified and repairs completed to the authorized

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX G - M39 CARRIAGE LOWER ASSEMBLY ANNEX

LESSON ID: 21310G01

HOURS: 28.00

TITLE: Repair Lower Carriage

echelon of maintenance utilizing the applicable references. (2131.03.04i)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX G - M39 CARRIAGE LOWER ASSEMBLY ANNEX

EXAM ID: 21310G02

HOURS: 7.00

TITLE: JPT Lower Carriage

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.10	10:1
X(P)	6.90	10:2

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M39 carriage assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04)
2. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, maintain M198 155MM howitzer tools, to ensure tools are serviceable per the references. (2131.01.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble wheel assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04f)
2. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble brake system, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04g)
3. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, disassemble / reassemble trails, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04h)
4. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair / replace carriage parts, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04i)
5. Given applicable tools, test equipment, cleaning materials, access to automated

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX G - M39 CARRIAGE LOWER ASSEMBLY ANNEX

EXAM ID: 21310G02

HOURS: 7.00

TITLE: JPT Lower Carriage

systems with internet access and applicable software, and references in a garrison or field environment, operate the torque wrench, to ensure tools are serviceable per the references. (2131.01.01g)

REFERENCE

REFERENCE #

1. Applicable Stock List SL-3	APPLICABLE SL-3
2. Lubrication Order, Howitzer, Medium Towed, 155MM M198	LO 9-1025-211-13
3. Purging Kit, Fire Control	SC 4931-95-CL-J54
4. MS, Pullover Gauge, Complete (KIT)	TM 00640A-13&P/1
5. Recoil Exerciser for M198 155MM Howitzer	TM 00999-23&P/1
6. Maintenance Manual for Borescope M3	TM 08522A-13&P
7. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM	TM 9-1025-211-20&P
8. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance	TM 9-1025-211-34
9. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts	TM 9-1025-211-34P
10. Pump Kit Hydraulic Oil Gun	TM 9-4933-201-15P

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX H - ASSEMBLY AND REVIEW ANNEX

LESSON ID: 21310H01

HOURS: 7.00

TITLE: Installation of components

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	10:1
PA	6.50	10:2

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M45 recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03)
2. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M39 carriage assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair / replace recoil mechanism components, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03c)
2. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, exercise the M45 recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03d)
3. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, replace all required safety wire on the M198 155mm howitzer, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04w)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX H - ASSEMBLY AND REVIEW ANNEX

LESSON ID: 21310H01

HOURS: 7.00

TITLE: Installation of components

3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance TM 9-1025-211-34
4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance TM 9-1025-211-34P
Parts

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX H - ASSEMBLY AND REVIEW ANNEX

EXAM ID: 21310H02

HOURS: 7.00

TITLE: JPT (Nitrogen Charging)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.10	10:1
X(P)	6.90	10:2

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M45 recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03)
2. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M39 carriage assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, charge equilibrators, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04v)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX H - ASSEMBLY AND REVIEW ANNEX

LESSON ID: 21310H03

HOURS: 3.25

TITLE: Fire Control PMCS

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	0.25	10:1
PA	3.00	10:2

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M39 carriage assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, prepare the M198A howitzer for fire control preventive maintenance, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.041)
2. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, test the M17/M18 fire control quadrant, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04m)
3. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, perform M137 Panoramic Telescope reliability test, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04n)
4. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, prepare the alignment test of the M171 Telescope Mount and the M137 Panoramic Telescope, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04o)
5. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, perform M139 Alignment Device comparison test, so that all required maintenance will be identified and repairs completed to the

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX H - ASSEMBLY AND REVIEW ANNEX

LESSON ID: 21310H03

HOURS: 3.25

TITLE: Fire Control PMCS

authorized echelon of maintenance utilizing the applicable references.
(2131.03.04p)

6. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, boresight the M198 Howitzer, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04q)

7. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, perform sight synchronization on the M198 howitzer, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04r)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 2. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |
| 3. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts | TM 9-1025-211-34P |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX H - ASSEMBLY AND REVIEW ANNEX

LESSON ID: 21310H04

HOURS: 3.75

TITLE: PMCS

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
D	0.75	10:1
L	1.00	10:1
PA	2.00	10:2

MEDIA: HO, TV, VCR

TERMINAL LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform M198 155MM howitzer PMCS, to ensure that it is fully operational per the references. (2131.02.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, identify organizational preventive maintenance checks and services requirements, to ensure that it is fully operational per the references. (2131.02.01a)
2. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, identify annual preventive maintenance checks and services requirements, to ensure that it is fully operational per the references. (2131.02.01b)
3. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, identify the requirements for special preventive maintenance checks and services, to ensure that it is fully operational per the references. (2131.02.01c)
4. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, identify the causes of corrosion, to ensure that it is fully operational per the references. (2131.02.01e)
5. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, identify the purpose of the corrosion prevention and control (CPAC) process, to ensure that it is fully operational per the references. (2131.02.01f)

REFERENCE

REFERENCE #

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX H - ASSEMBLY AND REVIEW ANNEX

LESSON ID: 21310H04

HOURS: 3.75

TITLE: PMCS

- | | |
|---|--------------------|
| 1. Lubrication Order, Howitzer, Medium Towed, 155MM M198 | LO 9-1025-211-13 |
| 2. Ground Equipment Records Procedures | TM 4700-15/1_ |
| 3. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM | TM 9-1025-211-20&P |
| 4. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance | TM 9-1025-211-34 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX I - DAY IN THE LIFE ANNEX

EXAM ID: 21310I01

HOURS: 10.25

TITLE: EOC (Day in the Life)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.25	10:1
X(P)	10.00	10:1

MEDIA: AIO, CPU, HO, TV, VCR

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable tools, test equipment, cleaning materials, access to automated systems with internet access and applicable software, and references in a garrison or field environment, maintain M198 155MM howitzer tools, to ensure tools are serviceable per the references. (2131.01.01)
2. Given an M198 Howitzer, assigned tools, access to automated systems with internet access and applicable software, and the references in a garrison or field environment, perform M198 155MM howitzer PMCS, to ensure that it is fully operational per the references. (2131.02.01)
3. Given an M198 Howitzer, assigned tools, test equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, maintain M198 howitzer collateral equipment, so that all required maintenance will be identified and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.01)
4. Given common tools, power tools, and the references, follow basic shop procedures, to maintain assigned work area in the accomplishment of maintenance assignments per the references. (2131.04.10)
5. Given equipment repair records and forms and the references, follow basic maintenance procedures, to validate equipment serviceability and completion of maintenance inspections and procedures per the references. (2131.04.11)
6. Given an M199 Cannon, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M199 cannon tube assembly, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.02)
7. Given an M45 Recoil Mechanism, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M45 recoil mechanism, so that all required maintenance and effect repairs to the authorized echelon of maintenance utilizing the applicable references. (2131.03.03)
8. Given an M39 Carriage assembly, assigned tools, other applicable equipment, access to automated systems with internet access and applicable software, and references, in a garrison or field environment, repair M39 carriage assembly, so that all required maintenance will be identified and repairs completed to the authorized echelon of maintenance utilizing the applicable references. (2131.03.04)

REFERENCE

REFERENCE #

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX I - DAY IN THE LIFE ANNEX

EXAM ID: 21310I01

HOURS: 10.25

TITLE: EOC (Day in the Life)

1. Occupational Safety and Health Standards, Hazard Communication 29 CFR 1910.1200
2. Applicable Stock List SL-3 APPLICABLE SL-3
3. Applicable Equipment Technical Publications APPLICABLE TM
4. Department of Defense Federal Hazard Communication Training Program Students's Workbook DOD 6050.5-W
5. Lubrication Order, Howitzer, Medium Towed, 155MM M198 LO 9-1025-211-13
6. Marine Corps Test, Measurement, and Diagnostic Equipment Calibrations and Maintenance Program MCO 4733.1
7. Consumer Level Supply Policy Manual MCO P4400.150
8. MIMMS Field Procedures Manual MCO P4790.2_
9. Environmental Compliance and Protection Manual MCO P5090.2__
10. The Marine Corps Technical Publications System MCO P5215.17
11. Catalog of Publications NAVMC 2761
12. Purging Kit, Fire Control SC 4931-95-CL-J54
13. Stock List 1-2 SL-1-2
14. Stock List 1-3 SL-1-3
15. Calibration Requirements Marine Corps TMDE Calibration and Maintenance Program TI 4733-15/1_
16. Infantry Weapons Gauge Calibration Exchange Program TI-4733-15/11
17. MS, Pullover Gauge, Complete (KIT) TM 00640A-13&P/1
18. Recoil Exerciser for M198 155MM Howitzer TM 00999-23&P/1
19. Maintenance Manual for Borescope M3 TM 08522A-13&P
20. Use and Care of Hand Measure Tools TM 10209-10/1
21. Ground Equipment Records Procedures TM 4700-15/1_
22. Organizational Maintenance Manual, Howitzer, Medium, Towed, M198 155MM TM 9-1025-211-20&P
23. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance TM 9-1025-211-34
24. Howitzer, Medium, Towed, M198 155MM Intermediate Maintenance Parts TM 9-1025-211-34P

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX I - DAY IN THE LIFE ANNEX

EXAM ID: 21310I01

HOURS: 10.25

TITLE: EOC (Day in the Life)

- | | |
|--|-------------------|
| 25. Use and Care of Hand Tools and Measuring Tools | TM 9-243 |
| 26. Pump Kit Hydraulic Oil Gun | TM 9-4933-201-15P |
| 27. FMF SASSY Using Unit Procedures | UM 4400-124 |
| 28. MIMMS AIS Field Maintenance Procedures | UM 4790-5 |

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX Z - ADMINISTRATIVE

EVENT ID: 21310Z01

HOURS: 8.00

EVENT: In Processing

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
ADMIN	8.00	10:1

MEDIA:

NOTE(S):

During this time the Marine will fill out all necessary administrative paperwork, receive a financial and medical brief, receive an academic in brief from the academic coordinator, and receive the command welcome aboard brief from the Commanding Officer and the First Sergeant.

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX Z - ADMINISTRATIVE

EVENT ID: 21310Z02

HOURS: 8.00

EVENT: Out Processing / Graduation

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
ADMIN	8.00	10:1

MEDIA:

NOTE(S):

The students will receive their orders, check out of medical, dental, supply, and various organizations aboard the post. Upon completion of checking out the Marines will be issued their orders and will have a short graduation ceremony.

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX Z - ADMINISTRATIVE

EVENT ID: 21310Z03

HOURS: 29.00

EVENT: Commanders Time

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
CMDR	29.00	10:1

MEDIA:

NOTE(S):

There are 29 sessions where commanders time will be implemented in the schedule for a total of 29 non-academic hours. During this time the Marines will conduct PT and have uniform inspections.

TOWED ARTILLERY REPAIRMAN

SECTION IV - CONCEPT CARDS

ANNEX Z - ADMINISTRATIVE

EVENT ID: 21310Z04

HOURS: 8.00

EVENT: Drivers Improvement

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
GD	8.00	10:1

MEDIA: TV, VCR, VT

NOTE(S):

In accordance with MCO 5100.19E All military personnel under the age of 26 will complete a course in traffic safety designed to establish and reinforce a positive attitude toward driving. Personnel will attend the Driver Improvement Course (DIC) within the first 90 days after completion of recruit training or officer candidate school.

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION V - STUDENT PERFORMANCE EVALUATION

1. SCOPE. There are two measurement methods used at the Towed Artillery Repairman Course. Individual lessons are evaluated by either performance evaluation calling for the student to duplicate the job performance requirements or test items on written examinations given during class.

2. MASTERY LEARNING. The evaluative philosophy utilized in this course stresses student achievement of all learning objectives. Students must master 100% of all Terminal Learning Objectives (TLOs) presented during all periods of instruction. Evaluations are used to determine mastery of the learning objectives, and not rank order the students. The minimum score of 80% is required to pass an exam.

3. EVALUATION OF STUDENTS. Each student is evaluated on each annex's learning objectives before proceeding to the next annex. This is accomplished through written test items concerning the subject material and through informal observation of student performance during practical application.

a. Written Evaluations. Knowledge-based learning objectives are evaluated by written examinations given throughout the course that contain written test items.

b. Practical Application. Students will be informally evaluated and provided feedback by instructors through observation of student performance during practical applications. Instructors evaluate student performance and provide feedback and remedial instruction until mastery of the learning objectives are achieved. The student who does not master a given subject must exert more effort and will be given one additional opportunity to achieve mastery of the learning objectives through remedial instruction. It is the responsibility of the Towed Artillery Repairman Course staff to render every assistance to each student needing help to achieve mastery.

c. Performance Evaluation. A performance test covering all performance-based learning objectives is conducted at the end of each annex. Students are evaluated via a performance checklist completed by the instructors.

TOWED ARTILLERY REPAIRMAN PROGRAM OF INSTRUCTION

SECTION VI - DISTRIBUTION LIST

<u>DISTRIBUTION</u>	<u>QUANTITY</u>
CG, MCCDC (C 472)	3
CG, TECOM (C 464)	3
CG, Training Command (C 475)	3
COMMARFORLANT	1
COMMARFORPAC	1
COMMARFORRES	1
American Council on Education (ACE)	1
Marine Corps Institute (MCI)	1