

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

PREFACE

1. The M1A1 Tank System Technician 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 & School
Aberdeen Proving Grounds, 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):

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
	CERTIFICATION PAGE	i
	RECORD OF CHANGES	ii
	PREFACE	iii
I	COURSE DESCRIPTIVE DATA	I-1
II	SUMMARY OF HOURS	II-1
III	SCOPE OF ANNEXES	III-1
IV	CONCEPT CARDS	IV-1
V	STUDENT PERFORMANCE EVALUATION	V-1
VI	DISTRIBUTION LIST	VI-1

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION I - COURSE DESCRIPTIVE DATA

1. COURSE TITLE. TANK SYSTEM TECHNICIAN COURSE (M1A1)
2. LOCATION. United States Marine Corps, Marine Detachment, U.S. Army Ordnance Center & School, Aberdeen Proving Ground, MD 21005-5281
3. COURSE ID. A01GBQ1
4. OTHER SERVICE COURSE NUMBER. 643-2146
5. MILITARY ARTICLES AND SERVICE LIST NUMBER. N/A
6. PURPOSE. To train Tank Mechanic (2146) in system trouble shooting and maintenance procedures on the Marine Corps Main Battle Tank, Tank Retriever M88A2, and Armored Vehicle Launched Bridge (AVLB), to include administrative forms and records.
7. SCOPE. The course includes advanced instruction on organizational and intermediate level maintenance and troubleshooting procedures of the M1A1, M88A2, and AVLB hull and turret systems to include the engine, transmission, electrical, pneumatic and hydraulic systems, analyzing and interpreting electrical and hydraulic diagrams, maintenance forms and record keeping procedures, publications, calibration procedures, and to perform integrated diagnostics with external test sets to include computer, digital and analog systems.
8. LENGTH (PEACETIME). 45 Training Days
9. CURRICULUM BREAKDOWN (PEACETIME).
 - 311.00 Academic Hours
 - 3.00 Computer-Based Training
 - 1.00 Guest Lecture
 - 101.65 Lecture
 - 171.00 Practical Application
 - 19.00 Performance Exam
 - 15.35 Written Exam
 - 49.00 Administrative Hours
 - 6.00 Administrative
 - 43.00 Commanders Time
10. LENGTH (MOBILIZATION). 0 Training Days
11. CURRICULUM BREAKDOWN (MOBILIZATION).
 - 0.00 Academic Hours
 - 0.00 Administrative Hours
12. MAXIMUM CLASS CAPACITY. 6
13. OPTIMUM CLASS CAPACITY. 6
14. MINIMUM CLASS CAPACITY. 4
15. CLASS FREQUENCY. 4
16. STUDENT PREREQUISITES. MM score of 105 or higher, complete the M1A1 Tank system Mechanic Course
17. MOS RECEIVED. None.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION I - COURSE DESCRIPTIVE DATA

18. QUOTA CONTROL. CG, Training Command, (C475)

19. FUNDING. TECOM (C464)

20. REPORTING INSTRUCTIONS. Students report to the Commanding Officer, Marine Detachment, U.S. Army Ordnance Center & School, Aberdeen Proving Ground Maryland 21005. All students should report in by 2359 the Sunday prior to the report date. During working and non-working hours report to Bldg 4501, Randolph Barracks, Commercial phone 1-800-392-2015 ext: 5703 or DSN: 298-5703. Marines will report in Service Alpha's. Privately Owned Vehicles (POV) are authorized. Government messing and billeting are available.

21. INSTRUCTOR STAFFING REQUIREMENTS. See Appendix A for Instructor Computation Worksheet.

LN#	GRADE	MOS	BILLET DESCRIPTION	REQUIRED
198E	E7	2146	M1A1 Instructor	1
198F	E6	2146	M1A1 Instructor	1
198G	E5	2146	M1A1 Instructor	1

22. SCHOOL OVERHEAD REQUIREMENTS. None in excess of T/O

LN#	GRADE	MOS	BILLET DESCRIPTION	REQUIRED
193A	O4	2102	COMMANDING OFFICER/ MC REP	1
193B	O3E	2102	INSTRUCTOR/ XO	1
193C	E8	9999	FIRST SERGEANT	1
194A	E6	0193	ADMIN CHIEF	1
194B	E5	0151	ADMIN CLERK	1
194C	E4	0121	UNIT DIARY CLERK	1
194D	E3	0121	UNIT DIARY CLERK	3
194E	E4	0121	PERS CLERK	1
194F	E3	0121	UNIT DIARY CLERK	2
195A	O3E	2102	CRS DEV SUPERVISOR	1
195C	E7	2111	ACADEMIC COORDINATOR	1
195D	E6	2146	CURRICULUM DEVELOPER/INSTRUCTOR	1
195E	E6	2111	CURRICULUM DEVELOPER/INSTRUCTOR	1
196A	E7	3043	SUPPLY CHIEF	1
196B	E4	3043	SUPPLY NCO	1
196C	E3	3043	SUPPLY CLERK	1
196D	E3	3043	SUPPLY CLERK	1
198A	W-3	2110	PLT CMDR/COURSE DIR	1
198B	E6	0369	PLATOON SGT	1
UNK2	E7	2100	S-3 OPERATION & TRAINING/ SACO	1
UNK4	E7	2100	DETACHMENT GUNNERY SERGEANT	1
UNK6	E7	2100	ISC/ COMPUTER REPAIR/ NETWORK ADMIN	1

23. TRAINING/EDUCATION SUPPORT REQUIREMENTS.

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

FACILITY	FACILITY ID	SQ FT	REQ'D	ON HAND	SHORT
GENERAL PURPOSE CLASSROOM	171-00-600-5000	600	2	2	0
INSTRUCTORS OFFICE	171-31	250	1	1	0
MAINT BAY	17130	9999	2	2	0

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

NOMEMCLATURE	NSN	UNIT OF ISSUE	REQ'D	ON HAND	SHORT
15" MONITOR	5820-01-X00-0021	EACH	2	2	0
A70522-ADAPTER TEST SET, BREAKOUT BOX M1/M1A1	5120-01-130-8077	EACH	2	2	0
ABOB	5999-01-436-8900	EACH	2	2	0

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION I - COURSE DESCRIPTIVE DATA

ALIGNMENT TOOL, MANUAL	1015-01-203-3342	EACH	1	1	0
AVDS 1790 2C	2815-00-410-1203	EACH	1	1	0
AVDS 1790 2DR	2015-00-124-5386	EACH	1	1	0
AVLB	5420-00-889-2020	EACH	1	1	0
BREECH RING REMOVAL KIT	5180-01-204-2703	EACH	1	1	0
C18234-TORQUE WRENCH 0-600 FT LBS	5120-00-221-7983	EACH	1	1	0
CALIPER, VERNIER, ENGLISH/METRIC, 0 TO 12 INCH	5210-00-293-2913	EACH	1	1	0
CD 850	2520-00-086-7792	EACH	1	1	0
CEU	1220-01-384-5683	EACH	1	0	1
COMPUTER CONTROL PANEL	1220-01-384-5683	EACH	1	0	1
CPU, PENTIUM	7021-01-X00-0018	EACH	2	2	0
CRADLE LIFTING KIT	1015-01-204-2680	EACH	4	4	0
DESK TOP COMPUTER CPU	7021-01-X00-0018	EACH	2	1	1
DISTRIBUTION BOX	6110-01-422-2562	EACH	2	2	0
DRIVERS INSTRUMENT PANEL	2510-01-179-7523	EACH	1	0	1
DRIVERS MASTER PANEL	6110-01-266-4006	EACH	2	1	1
ENGINE STAND	1920-71-234-5289	EACH	1	1	0
FINAL DRIVE	2520-01-058-1161	EACH	1	1	0
FINAL DRIVE & CONTAI / M1A1	2520-01-167-4282	EACH	1	1	0
GAGE AND ADAPTER	1015-01-196-8256	EACH	1	1	0
GAGE AND ADAPTER	4933-01-108-4932	EACH	1	1	0
GANTRY TROLLEY HOIST, 3 TON	3950-N-SI	EACH	2	2	0
GENERAL MECHANIC TOOL BOX	5180-00-606-3566	EACH	2	2	0
GROUND HOP SUPPORTS	4910-01-231-0343	EACH	1	1	0
GTD ELECTRONICS UNIT	1015-01-078-1205	EACH	2	1	1
HP LASERJET, 4 PRINTER	7025-01-X00-0023	EACH	1	1	0
HULL DISTRIBUTION BOX	6110-01-285-9848	EACH	2	2	0
HULL NETWORKS BOX	6110-01-344-0469	EACH	2	2	0
INSIDE CALIPER	5210-00-293-1852	EACH	1	1	0
LAP TOP COMPUTER	7021-01-X00-0058	EACH	1	1	0
LIFTING KIT	4933-01-083-2041	EACH	4	4	0
LIFTING KIT	4933-01-108-4933	EACH	4	4	0
LIFTING KIT, CMD'S WEAPONS STATION	12284836	EACH	4	4	0
LOS- ELECTRONICS UNIT	5999-01-171-4774	EACH	2	1	1
M1A1 FUPP	2835-01-281-2869	EACH	1	1	0
M1A1 TRANSMISSION	2520-01-203-0178	EACH	1	1	0
M60449-MULTIMETER, DIGITAL AN/PSM 45	6625-01-139-2512	EACH	2	2	0
M88A1 O. R. U	2520-00-896-9021	EACH	1	1	0
MICROMETER 0-1 INCH	5210-00-540-2973	EACH	4	4	0
MOUSE, REMOTE CONTROL	7025-01-X00-0003	EACH	1	1	0
OUTPUT REDUCTION	2520-00-896-9020	EACH	1	1	0
PISTON DEPRESSOR KIT	1015-01-204-2677	SET	1	1	0
PRESSURE GAGE	6685-00-754-4111	EACH	1	1	0
RAIL ASSEMBLY	4933-01-083-2055	EACH	1	1	0
RECEIVER, REMOTE MOUSE	7025-01-X00-0004	EACH	1	1	0
REPAIR KIT, ELEVATION	4933-01-143-9377	EACH	1	1	0
ROTOR LIFTING KIT	5180-01-206-0801	EACH	1	1	0
SOCKET, SET 3/4 INCH DRIVE	5120-00-204-1999	EACH	1	1	0
SPRING COMPRESSOR	4933-01-206-0044	EACH	1	1	0
STE M1/FVS	4910-01-135-9655	EACH	1	1	0
T52849-DSESTS	4931-01-088-0032	EACH	1	0	1
TANK, CBT, FT M1A1	2350-01-087-1095	EACH	1	1	0

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION I - COURSE DESCRIPTIVE DATA

TIS-POWER CONTROL UNIT	1240-01-162-0367	EACH	2	1	1
TOOL KIT AVLB	5180-00-M00-0012	EACH	1	1	0
TOOL KIT, AVLB	5180-00-M00-0012	EACH	1	1	0
TOOL KIT, M1A1	5180-00-M00-0010	EACH	1	1	0
TOOL KIT, M88A1	5180-00-M00-0011	EACH	1	1	0
TOOL KIT, M88A1, 3RD ECHELON	5180-01-145-1474	EACH	1	1	0
TOOL KIT, M88A1, 4TH ECHELON	5180-01-143-9606	EACH	1	1	0
TOOL SET, M1A1 2ND ECHELON	5180-01-336-2880	EACH	1	1	0
TOOL SET, M1A1 3RD ECHELON	5180-01-336-2878	EACH	1	1	0
TRANSMISSION, HYDRAULIC	2520-01-325-9834	EACH	1	1	0
TURRET NETWORKS BOX	1005-01-076-6688	EACH	2	0	2
WRENCH TORQUE 175 FT LBS	5120-00-640-6364	EACH	1	1	0
X1100 3B TRANSMISSION	2520-01-325-9834	EACH	1	1	0
XT 1410 CROSS DRIVE TRANS	2520-00-140-7526	EACH	1	1	0

24. TASK LIST. See Appendix B.

CDD NOTES: All practical application is performed in a lab setting.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION I - COURSE DESCRIPTIVE DATA

APPENDIX A - INSTRUCTOR COMPUTATION WORKSHEET (LOCKSTEP)

SECTION I COURSE DATA

COURSE: A01GBQ1 TANK SYSTEM TECHNICIAN COURSE (M1A1)

LOCATION: United States Marine Corps, Marine Detachment, U.S. Army Ordnance Center & School, Aberdeen Proving Ground, MD 21005-5281

PROGRAMMED ANNUAL INPUT (FY 03): 24 LENGTH (AVG CAL DAYS): 63

PROGRAMMED NUMBER OF CLASSES/YEAR: 4 LENGTH (TRAINING DAYS): 45

SYLLABUS HOURS: 311.00

SECTION II CURRICULUM BREAKOUT

(A)	(B)	(C)	(D)	(E)	(F)
TRAINING SITUATION	MAX CLASS SIZE	MAX RATIO (X:1)	INST REQ	SYLLABUS HOURS	INST MANHOURS
Computer-Based Training	6	÷ 6.00	= 1.00	x 3.00	= 3.00
Guest Lecture	6	÷ 6.00	= 1.00	x 1.00	= 1.00
Lecture	6	÷ 6.00	= 1.00	x 101.65	= 101.65
Practical Application	6	÷ 6.00	= 1.00	x 171.00	= 171.00
Performance Exam	6	÷ 6.00	= 1.00	x 19.00	= 19.00
Written Exam	6	÷ 6.00	= 1.00	x 15.35	= 15.35
TOTAL INSTRUCTOR MANHOURS PER CLASS(G):					<u>311.00</u>

SECTION III INSTRUCTOR COMPUTATION

TOTAL INSTRUCTOR MANHOURS PER CLASS	x	PROGRAMMED NUMBER OF CLASSES	=	ANNUAL INSTRUCTOR CONTACT HOURS	<u>1244.00</u>
ANNUAL INSTRUCTOR CONTACT HOURS	x	1.26	=	ANNUAL INSTRUCTOR HOURS	<u>1567.44</u>
ANNUAL INSTRUCTOR HOURS	÷	12	=	MONTHLY INSTRUCTOR HOURS	<u>130.62</u>
MONTHLY INSTRUCTOR HOURS	÷	145	=	INSTRUCTORS REQUIRED	<u>0.901 = 1</u>

ICW NOTES: Instructors are tasked and required to mentor Marines within the course and provide additional support as required by the Detachment. These taskers include Ordnance Officers/Chief's course instructors, chaser for brig/CCU, monitor urinalysis, PT, PFT's, and field day inspections. Progression through the Army Staff & Faculty Development Program, and Marine Corps Professional Education is required.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION I - COURSE DESCRIPTIVE DATA

APPENDIX B - TASKLIST

DUTY: 2146.03 INTERMEDIATE MAINTENANCE

- TASKS: (S) 2146.03.01 TROUBLESHOOT M1A1 HULL SYSTEM COMPONENTS
(S) 2146.03.02 TROUBLESHOOT M1A1 TURRET SYSTEM COMPONENTS
(S) 2146.03.04 MAINTAIN M1A1 FUEL SYSTEM COMPONENTS
(S) 2146.03.06 MAINTAIN M1A1 HULL ELECTRICAL SYSTEM COMPONENTS
(S) 2146.03.07 REPAIR M1A1 FINAL DRIVE ASSEMBLY
(S) 2146.03.11 MAINTAIN M1A1 FIRE SUPPRESSION EQUIPMENT COMPONENTS
(S) 2146.03.12 MAINTAIN M1A1 TURRET ELECTRICAL SYSTEM COMPONENTS
(S) 2146.03.13 MAINTAIN M1A1 TURRET HYDRAULIC SYSTEM COMPONENTS
(S) 2146.03.15 MAINTAIN M1A1 ARMAMENT SYSTEM COMPONENTS
(S) 2146.03.17 MAINTAIN X11003B TRANSMISSION
(S) 2146.03.18 MAINTAIN EXTERNAL AUXILIARY POWER UNIT (EAPU)
(S) 2146.03.19 TROUBLESHOOT M88A1/M88A2
(P) 2146.03.20 MAINTAIN M88A1/M88A2 SYSTEMS
(S) 2146.03.22 REPAIR M88A1/M88A2 ENGINE
(S) 2146.03.23 REPAIR M88A1/M88A2 TRANSMISSION
(S) 2146.03.25 MAINTAIN M88A1/M88A2 FUEL SYSTEM
(S) 2146.03.26 MAINTAIN AVLB ENGINE
(S) 2146.03.28 MAINTAIN AVLB ELECTRICAL SYSTEM
(S) 2146.03.29 MAINTAIN AVLB TRANSMISSION
(S) 2146.03.30 MAINTAIN AVLB BRAKE SYSTEM COMPONENTS
(P) 2146.03.33 MAINTAIN AVLB FIRE SUPPRESSION SYSTEM
(S) 2146.03.34 MAINTAIN AVLB LAUNCHER

DUTY: 2146.04 INTERMEDIATE MAINTENANCE

- TASKS: (P) 2146.04.01 MANAGE MAINTENANCE FUNCTIONAL AREAS
(S) 2146.04.04 PERFORM MIMMS/ATLASS II+ SYSTEMS ADMINISTRATION

TASK LIST NOTES: The M88A1 Tank Recovery Vehicle is no longer in the Marine Corps inventory. If the task calls for the M88A1 to be troubleshot, repaired, or maintained there will be no learning objectives for the M88A1 only learning objectives for the M88A2.

Task 2146.03.24 and 03.35 are not taught because they have the same mechanical operation as the M1A1 final drive. The knowledge gained from the maintenance of the final drive is easily transferred to the M88A2 output reduction unit and the AVLB final drive.

Task 2146.03.30 is not taught because this task is not cost effective and therefore not performed in the Operating Forces.

a. "Applicable resources" as written in the condition of the learning objective refers to: Tools, TMDE, equipment, personnel, facilities, access to the internet where required and current references.

b. "References" as written in the standard of the learning objectives refers to: current Orders, Directives, TMs, TIs, SIs, MIs and SLs.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION II - SUMMARY OF HOURS

PEACETIME (45 TRAINING DAYS)

ACADEMIC TIME

<u>TITLE</u>	<u>HOURS</u>	<u>ANNEX</u>
GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE	39.50	A
ADVANCED MECHANICAL KNOWLEDGE AND SKILLS	50.50	B
M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING	70.00	C
M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING	83.75	D
M88A2/AVLB OPERATION AND COMPONENT REPAIR	<u>67.25</u>	E
TOTAL ACADEMIC HOURS:	311.00	

ADMINISTRATIVE TIME

IN PROCESSING	3.00	Z
OUT PROCESSING/GRADUATION	3.00	Z
COMMANDERS TIME	<u>43.00</u>	Z
TOTAL ADMINISTRATIVE HOURS:	49.00	

SUMMARY (PEACETIME)

ACADEMIC TIME	311.00
ADMINISTRATIVE TIME	<u>49.00</u>
TOTAL ACADEMIC AND ADMINISTRATIVE TIME:	360.00

MOBILIZATION (0 TRAINING DAYS)

During mobilization this course will not be conducted.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION III - SCOPE OF ANNEXES

A. GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE. The learning outcome of this annex is to provide the student with common knowledge and skills required for the effective maintenance administration of ordnance equipment at the organizational and intermediate levels. Emphasis is placed on the Ground Ordnance Intermediate Level Supervisor. Principal subjects of study are: Directives, Publications, Supply Support, Maintenance Production, Maintenance Related Programs, Maintenance Training Programs, and Maintenance Logistics.

B. ADVANCED MECHANICAL KNOWLEDGE AND SKILLS. This annex provides the student training on Electronics, Hydraulics, Soldering and repair of electronic components. Emphasis is placed on electronic and hydraulic theory of operation which transfers to troubleshooting those systems in any type of vehicle. The knowledge and skill gained in this annex will be re-enforced in all remaining annexes.

C. M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING. This annex provides the student training in advanced turbine engine operation and diagnostics, transmission operation and use of electrical schematics and diagnostic equipment in troubleshooting. Students are afforded the opportunity to display mastery of turbine engine operation and diagnostics using electrical schematics and diagnostic equipment.

D. M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING. This annex reinforces the student's ability to use wiring schematics and test equipment to troubleshoot electrical circuits. It also provides the student the opportunity to display objective mastery of using schematics and test equipment to diagnose malfunctions.

E. M88A2/AVLB OPERATION AND COMPONENT REPAIR. This annex provides the student training on the M88A2 Hercules and AVLB. Emphasis is placed on the hydraulics and diesel engine operation. Students are afforded an opportunity to display mastery of hydraulic systems and diesel engine operation.

Z. ADMINISTRATIVE. This annex includes administrative support, course content review/introduction, graduation practice and graduation.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

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.
 - 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. This section does not apply to this MOS school.
 - f. Group (optional). This is a code depicting the instructional group or section responsible for teaching or developing this lesson or exam. This does not apply to the MOS school.
 - 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
Computer-Based Training	CBT
Commanders Time	CMDR
Guest Lecture	GL
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
Computer	CPU
Handout	HO
PowerPoint Presentation	PPP
Television	TV
Video Cassette Recorder	VCR
Videotape	VT

- i. Learning Objective(s)/Lesson Purpose. Academic concept cards contain either

SECTION IV - CONCEPT CARDS

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.

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

SECTION IV - CONCEPT CARDS

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.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.01	B	21460B07	Test Measurement and Diagnostic Equipment (TMDE)
	B	21460B09	Electronics
	B	21460B11	JKT B Annex
	C	21460C02	AGT 1500 Engine Operation
	C	21460C04	M1A1 Hull System Schematics
	C	21460C05	Trouble Shooting M1A1 Hull Systems
	C	21460C06	Repair M1A1 Hull System Electrical Components
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
	2146.03.01a	C	21460C02
C		21460C09	JKT and Review (C02-C08)
C		21460C10	JPT and Review (C02-C08)
2146.03.01b	C	21460C02	AGT 1500 Engine Operation
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01c	C	21460C02	AGT 1500 Engine Operation
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01d	C	21460C02	AGT 1500 Engine Operation
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01e	C	21460C02	AGT 1500 Engine Operation
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01f	C	21460C02	AGT 1500 Engine Operation
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01g	C	21460C02	AGT 1500 Engine Operation
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01h	C	21460C02	AGT 1500 Engine Operation
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01i	C	21460C02	AGT 1500 Engine Operation
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01j	C	21460C04	M1A1 Hull System Schematics
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01k	C	21460C04	M1A1 Hull System Schematics
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.01l	C	21460C04	M1A1 Hull System Schematics
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01m	C	21460C04	M1A1 Hull System Schematics
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01n	C	21460C05	Trouble Shooting M1A1 Hull Systems
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01o	C	21460C05	Trouble Shooting M1A1 Hull Systems
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01p	C	21460C05	Trouble Shooting M1A1 Hull Systems
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01q	C	21460C06	Repair M1A1 Hull System Electrical Components
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01r	C	21460C06	Repair M1A1 Hull System Electrical Components
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01s	C	21460C06	Repair M1A1 Hull System Electrical Components
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
2146.03.01t	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01u	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01v	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01w	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01x	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01y	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01z	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01aa	B	21460B09	Electronics
	B	21460B11	JKT B Annex

TANK SYSTEM TECHNICIAN COURSE (MLA1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.01ab	B	21460B07	Test Measurement and Diagnostic Equipment (TMDE)
	B	21460B11	JKT B Annex
2146.03.01ac	B	21460B07	Test Measurement and Diagnostic Equipment (TMDE)
	B	21460B11	JKT B Annex
2146.03.01ad	B	21460B07	Test Measurement and Diagnostic Equipment (TMDE)
	B	21460B11	JKT B Annex
2146.03.01ae	B	21460B07	Test Measurement and Diagnostic Equipment (TMDE)
	B	21460B11	JKT B Annex
2146.03.01af	B	21460B07	Test Measurement and Diagnostic Equipment (TMDE)
	B	21460B11	JKT B Annex
2146.03.01ag	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01ah	C	21460C02	AGT 1500 Engine Operation
2146.03.01ai	C	21460C02	AGT 1500 Engine Operation
2146.03.01aj	C	21460C02	AGT 1500 Engine Operation
2146.03.01ak	C	21460C02	AGT 1500 Engine Operation
2146.03.01al	C	21460C02	AGT 1500 Engine Operation
2146.03.01am	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01an	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01ao	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01ap	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01aq	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01ar	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01as	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01at	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01au	B	21460B09	Electronics
	B	21460B11	JKT B Annex

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.01av	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01aw	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01ax	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01ay	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01az	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01ba	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01bb	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01bc	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01bd	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.01be	B	21460B09	Electronics
	B	21460B11	JKT B Annex
2146.03.02	D	21460D02	Fire Control System Functioning
	D	21460D03	Thermal Imaging System Functioning
	D	21460D04	M1A1 Turret Systems Schematics
	D	21460D05	M1A1 Hydraulic Systems Functioning
	D	21460D06	Trouble Shooting M1A1 Turret Systems and Components
	D	21460D13	JPT and Review (D2-D12)
	D	21460D14	JKT and Review (D2-D13)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.02a	D	21460D02	Fire Control System Functioning
2146.03.02b	D	21460D02	Fire Control System Functioning
2146.03.02c	D	21460D02	Fire Control System Functioning
2146.03.02d	D	21460D02	Fire Control System Functioning
2146.03.02e	D	21460D03	Thermal Imaging System Functioning
2146.03.02f	D	21460D05	M1A1 Hydraulic Systems Functioning
2146.03.02g	D	21460D04	M1A1 Turret Systems Schematics
2146.03.02h	D	21460D04	M1A1 Turret Systems Schematics

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.02i	D	21460D04	M1A1 Turret Systems Schematics
2146.03.02j	D	21460D04	M1A1 Turret Systems Schematics
2146.03.02k	D	21460D06	Trouble Shooting M1A1 Turret Systems and Components
2146.03.02m	D	21460D06	Trouble Shooting M1A1 Turret Systems and Components
2146.03.02o	D	21460D03	Thermal Imaging System Functioning
2146.03.02p	D	21460D03	Thermal Imaging System Functioning
2146.03.02q	D	21460D03	Thermal Imaging System Functioning
2146.03.02r	D	21460D05	M1A1 Hydraulic Systems Functioning
2146.03.02s	D	21460D06	Trouble Shooting M1A1 Turret Systems and Components
2146.03.02t	D	21460D06	Trouble Shooting M1A1 Turret Systems and Components
2146.03.04	C E	21460C02 21460E12	AGT 1500 Engine Operation End of Course (EOC) JPT (A1-E17)
2146.03.04a	C	21460C02	AGT 1500 Engine Operation
2146.03.04b	C	21460C02	AGT 1500 Engine Operation
2146.03.04c	C	21460C02	AGT 1500 Engine Operation
2146.03.06	B B C C C E	21460B05 21460B11 21460C06 21460C09 21460C10 21460E12	Wiring Harness Repair JKT B Annex Repair M1A1 Hull System Electrical Components JKT and Review (C02-C08) JPT and Review (C02-C08) End of Course (EOC) JPT (A1-E17)
2146.03.06a	C C C	21460C06 21460C09 21460C10	Repair M1A1 Hull System Electrical Components JKT and Review (C02-C08) JPT and Review (C02-C08)
2146.03.06b	B B	21460B05 21460B11	Wiring Harness Repair JKT B Annex
2146.03.06c	B B	21460B05 21460B11	Wiring Harness Repair JKT B Annex
2146.03.06d	B	21460B05	Wiring Harness Repair
2146.03.06e	B	21460B05	Wiring Harness Repair
2146.03.06f	B	21460B05	Wiring Harness Repair
2146.03.06g	B	21460B05	Wiring Harness Repair
2146.03.06h	B	21460B05	Wiring Harness Repair

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.06i	B	21460B05	Wiring Harness Repair
2146.03.06j	B	21460B05	Wiring Harness Repair
2146.03.06k	B	21460B05	Wiring Harness Repair
2146.03.06l	B	21460B05	Wiring Harness Repair
2146.03.07	C	21460C07	Repair M1A1 Final Drive Assembly
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.07a	C	21460C07	Repair M1A1 Final Drive Assembly
2146.03.07b	C	21460C07	Repair M1A1 Final Drive Assembly
2146.03.11	D	21460D09	M1A1 Fire Suppression System
	D	21460D13	JPT and Review (D2-D12)
	D	21460D14	JKT and Review (D2-D13)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.11a	D	21460D09	M1A1 Fire Suppression System
2146.03.11b	D	21460D09	M1A1 Fire Suppression System
2146.03.11c	D	21460D09	M1A1 Fire Suppression System
2146.03.11d	D	21460D09	M1A1 Fire Suppression System
2146.03.12	D	21460D07	Repair M1A1 Turret Components
	D	21460D13	JPT and Review (D2-D12)
	D	21460D14	JKT and Review (D2-D13)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.12a	D	21460D07	Repair M1A1 Turret Components
2146.03.12b	D	21460D07	Repair M1A1 Turret Components
2146.03.13	B	21460B06	Hose Fabrication
	B	21460B08	Hydraulics
	B	21460B11	JKT B Annex
	D	21460D13	JPT and Review (D2-D12)
	D	21460D14	JKT and Review (D2-D13)
2146.03.13a	D	21460D13	JPT and Review (D2-D12)
	D	21460D14	JKT and Review (D2-D13)
2146.03.13b	D	21460D13	JPT and Review (D2-D12)
	D	21460D14	JKT and Review (D2-D13)
2146.03.13c	B	21460B06	Hose Fabrication
	B	21460B11	JKT B Annex
2146.03.13d	B	21460B06	Hose Fabrication

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
	B	21460B11	JKT B Annex
2146.03.13e	B	21460B06	Hose Fabrication
	B	21460B11	JKT B Annex
2146.03.13f	B	21460B06	Hose Fabrication
	B	21460B11	JKT B Annex
2146.03.13g	B	21460B06	Hose Fabrication
	B	21460B11	JKT B Annex
2146.03.13h	B	21460B08	Hydraulics
	B	21460B11	JKT B Annex
2146.03.13i	B	21460B08	Hydraulics
	B	21460B11	JKT B Annex
2146.03.13j	B	21460B08	Hydraulics
	B	21460B11	JKT B Annex
2146.03.13k	B	21460B08	Hydraulics
	B	21460B11	JKT B Annex
2146.03.13l	B	21460B08	Hydraulics
	B	21460B11	JKT B Annex
2146.03.13m	B	21460B08	Hydraulics
	B	21460B11	JKT B Annex
2146.03.15	D	21460D10	Recoil Mechanism Wiper Seal Replacement
	D	21460D11	Traverse Mechanism and Main Gun Rotor
	D	21460D12	Bore Scoping the M1A1 Main Gun
	D	21460D13	JPT and Review (D2-D12)
	D	21460D14	JKT and Review (D2-D13)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.15a	D	21460D10	Recoil Mechanism Wiper Seal Replacement
2146.03.15b	D	21460D10	Recoil Mechanism Wiper Seal Replacement
2146.03.15c	D	21460D10	Recoil Mechanism Wiper Seal Replacement
2146.03.15d	D	21460D10	Recoil Mechanism Wiper Seal Replacement
2146.03.15e	D	21460D10	Recoil Mechanism Wiper Seal Replacement
2146.03.15f	D	21460D11	Traverse Mechanism and Main Gun Rotor
2146.03.15g	D	21460D11	Traverse Mechanism and Main Gun Rotor
2146.03.15h	D	21460D11	Traverse Mechanism and Main Gun Rotor
2146.03.15i	D	21460D11	Traverse Mechanism and Main Gun Rotor
2146.03.15j	D	21460D12	Bore Scoping the M1A1 Main Gun

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.15k	D	21460D12	Bore Scoping the M1A1 Main Gun
2146.03.15l	D	21460D12	Bore Scoping the M1A1 Main Gun
2146.03.15m	D	21460D12	Bore Scoping the M1A1 Main Gun
2146.03.17	C	21460C03	X1100-3B Transmission Operation
	C	21460C08	Repair X1100-3B Transmission
	C	21460C09	JKT and Review (C02-C08)
	C	21460C10	JPT and Review (C02-C08)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.17a	C	21460C03	X1100-3B Transmission Operation
2146.03.17b	C	21460C03	X1100-3B Transmission Operation
2146.03.17c	C	21460C03	X1100-3B Transmission Operation
2146.03.17d	C	21460C03	X1100-3B Transmission Operation
2146.03.17e	C	21460C08	Repair X1100-3B Transmission
2146.03.17f	C	21460C08	Repair X1100-3B Transmission
2146.03.17g	C	21460C08	Repair X1100-3B Transmission
2146.03.18	D	21460D08	M1A1 External Auxiliary Power Unit (EAPU)
	D	21460D13	JPT and Review (D2-D12)
	D	21460D14	JKT and Review (D2-D13)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.18a	D	21460D08	M1A1 External Auxiliary Power Unit (EAPU)
2146.03.18b	D	21460D08	M1A1 External Auxiliary Power Unit (EAPU)
2146.03.18c	D	21460D08	M1A1 External Auxiliary Power Unit (EAPU)
2146.03.18d	D	21460D08	M1A1 External Auxiliary Power Unit (EAPU)
2146.03.18e	D	21460D08	M1A1 External Auxiliary Power Unit (EAPU)
2146.03.19	E	21460E04	Troubleshoot M88A2
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.19a	E	21460E04	Troubleshoot M88A2
2146.03.19b	E	21460E04	Troubleshoot M88A2
2146.03.19c	E	21460E04	Troubleshoot M88A2
2146.03.19d	E	21460E04	Troubleshoot M88A2
2146.03.20	B	21460B04	Rigging and Recovery
	B	21460B11	JKT B Annex

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
	E	21460E03	M88A2 Hydraulic Systems
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.20a	E	21460E03	M88A2 Hydraulic Systems
2146.03.20b	E	21460E03	M88A2 Hydraulic Systems
	E	21460E11	JKT and Review (E02-E17)
2146.03.20c	B	21460B04	Rigging and Recovery
	B	21460B11	JKT B Annex
2146.03.20d	B	21460B04	Rigging and Recovery
	B	21460B11	JKT B Annex
2146.03.20e	B	21460B04	Rigging and Recovery
	B	21460B11	JKT B Annex
2146.03.20f	B	21460B04	Rigging and Recovery
	B	21460B11	JKT B Annex
2146.03.20g	B	21460B04	Rigging and Recovery
2146.03.20h	E	21460E03	M88A2 Hydraulic Systems
2146.03.20i	E	21460E03	M88A2 Hydraulic Systems
2146.03.20j	E	21460E03	M88A2 Hydraulic Systems
2146.03.20k	E	21460E03	M88A2 Hydraulic Systems
2146.03.20l	E	21460E03	M88A2 Hydraulic Systems
2146.03.22	E	21460E05	Repair M88A2/AVLB Engine
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.22a	E	21460E05	Repair M88A2/AVLB Engine
2146.03.22b	E	21460E05	Repair M88A2/AVLB Engine
2146.03.22c	E	21460E05	Repair M88A2/AVLB Engine
2146.03.22d	E	21460E05	Repair M88A2/AVLB Engine
2146.03.22e	E	21460E05	Repair M88A2/AVLB Engine
2146.03.22f	E	21460E05	Repair M88A2/AVLB Engine
2146.03.22g	E	21460E05	Repair M88A2/AVLB Engine
2146.03.23	E	21460E06	Repair M88A2 Transmission
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.23a	E	21460E06	Repair M88A2 Transmission
2146.03.23b	E	21460E06	Repair M88A2 Transmission
2146.03.23c	E	21460E06	Repair M88A2 Transmission
2146.03.23d	E	21460E06	Repair M88A2 Transmission
2146.03.23e	E	21460E06	Repair M88A2 Transmission
2146.03.23f	E	21460E06	Repair M88A2 Transmission
2146.03.25	E	21460E04	Troubleshoot M88A2
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.25a	E	21460E04	Troubleshoot M88A2
2146.03.25b	E	21460E04	Troubleshoot M88A2
2146.03.25c	E	21460E04	Troubleshoot M88A2
2146.03.25d	E	21460E04	Troubleshoot M88A2
2146.03.26	E	21460E05	Repair M88A2/AVLB Engine
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.28	E	21460E09	Maintain AVLB Electrical System
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.28a	E	21460E09	Maintain AVLB Electrical System
2146.03.28b	E	21460E09	Maintain AVLB Electrical System
2146.03.28c	E	21460E09	Maintain AVLB Electrical System
2146.03.28d	E	21460E09	Maintain AVLB Electrical System
2146.03.29	E	21460E07	Maintain AVLB Transmission
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.29a	E	21460E07	Maintain AVLB Transmission
2146.03.29b	E	21460E07	Maintain AVLB Transmission
2146.03.29c	E	21460E07	Maintain AVLB Transmission
2146.03.30	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.33	E	21460E10	Maintain AVLB Fire Suppression System
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.03.33a	E	21460E10	Maintain AVLB Fire Suppression System
2146.03.33b	E	21460E10	Maintain AVLB Fire Suppression System
2146.03.33c	E	21460E10	Maintain AVLB Fire Suppression System
2146.03.33d	E	21460E10	Maintain AVLB Fire Suppression System
2146.03.33e	E	21460E10	Maintain AVLB Fire Suppression System
2146.03.34	E	21460E08	Maintain AVLB Launcher Systems
	E	21460E11	JKT and Review (E02-E17)
	E	21460E12	End of Course (EOC) JPT (A1-E17)
2146.03.34a	E	21460E08	Maintain AVLB Launcher Systems
2146.03.34b	E	21460E08	Maintain AVLB Launcher Systems
2146.03.34c	E	21460E08	Maintain AVLB Launcher Systems
2146.03.34d	E	21460E08	Maintain AVLB Launcher Systems
2146.04.01	B	21460B01	Not Mission Capable Criteria
	B	21460B02	Joint Oil Analysis Program (JOAP)
	B	21460B03	Battlefield Damage Assessment Repair (BDAR)
	B	21460B10	Corrosion Prevention and Control (CPAC)
	B	21460B11	JKT B Annex
	A	21XX0T01	Table of Organization & Equipment (T/O&E)
	A	21XX0T02	Publications
	A	21XX0T03	MOS Training / ITS / Records
	A	21XX0T04	Desktop / Turnover Procedures
	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T06	Product Quality Deficiency Report (PQDR)
	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T09	Modifications
A	21XX0T10	Operational Risk Management/Shop Safety	
A	21XX0T11	Maintenance Administration	
A	21XX0T13	Mid Course Exam	
2146.04.01a	A	21XX0T03	MOS Training / ITS / Records
	A	21XX0T13	Mid Course Exam
2146.04.01b	A	21XX0T03	MOS Training / ITS / Records
	A	21XX0T13	Mid Course Exam
2146.04.01c	A	21XX0T03	MOS Training / ITS / Records
	A	21XX0T13	Mid Course Exam
2146.04.01d	A	21XX0T03	MOS Training / ITS / Records
	A	21XX0T13	Mid Course Exam
2146.04.01e	A	21XX0T03	MOS Training / ITS / Records

TANK SYSTEM TECHNICIAN COURSE (MLA1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
	A	21XX0T13	Mid Course Exam
2146.04.01f	A	21XX0T03	MOS Training / ITS / Records
	A	21XX0T13	Mid Course Exam
2146.04.01g	A	21XX0T03	MOS Training / ITS / Records
	A	21XX0T13	Mid Course Exam
2146.04.01h	A	21XX0T04	Desktop / Turnover Procedures
	A	21XX0T13	Mid Course Exam
2146.04.01i	A	21XX0T04	Desktop / Turnover Procedures
	A	21XX0T13	Mid Course Exam
2146.04.01j	A	21XX0T04	Desktop / Turnover Procedures
	A	21XX0T13	Mid Course Exam
2146.04.01k	A	21XX0T04	Desktop / Turnover Procedures
	A	21XX0T13	Mid Course Exam
2146.04.01l	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T13	Mid Course Exam
2146.04.01m	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T13	Mid Course Exam
2146.04.01n	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T13	Mid Course Exam
2146.04.01o	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T13	Mid Course Exam
2146.04.01p	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T13	Mid Course Exam
2146.04.01q	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T13	Mid Course Exam
2146.04.01r	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T13	Mid Course Exam
2146.04.01s	A	21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)
	A	21XX0T13	Mid Course Exam
2146.04.01t	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.04.01u	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam
2146.04.01v	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam
2146.04.01w	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam
2146.04.01x	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam
2146.04.01y	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam
2146.04.01z	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam
2146.04.01aa	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam
2146.04.01ab	A	21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control
	A	21XX0T13	Mid Course Exam
2146.04.01ac	A	21XX0T09	Modifications
	A	21XX0T13	Mid Course Exam
2146.04.01ad	A	21XX0T09	Modifications
	A	21XX0T13	Mid Course Exam
2146.04.01ae	A	21XX0T09	Modifications
	A	21XX0T13	Mid Course Exam
2146.04.01af	A	21XX0T09	Modifications
	A	21XX0T13	Mid Course Exam
2146.04.01ag	A	21XX0T09	Modifications
	A	21XX0T13	Mid Course Exam
2146.04.01ah	A	21XX0T06	Product Quality Deficiency Report (PQDR)
	A	21XX0T13	Mid Course Exam
2146.04.01ai	A	21XX0T06	Product Quality Deficiency Report (PQDR)
	A	21XX0T13	Mid Course Exam
2146.04.01aj	A	21XX0T06	Product Quality Deficiency Report (PQDR)
	A	21XX0T13	Mid Course Exam

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.04.01ak	A	21XX0T06	Product Quality Deficiency Report (PQDR)
	A	21XX0T13	Mid Course Exam
2146.04.01al	A	21XX0T06	Product Quality Deficiency Report (PQDR)
	A	21XX0T13	Mid Course Exam
2146.04.01am	A	21XX0T06	Product Quality Deficiency Report (PQDR)
	A	21XX0T13	Mid Course Exam
2146.04.01an	A	21XX0T01	Table of Organization & Equipment (T/O&E)
	A	21XX0T13	Mid Course Exam
2146.04.01ao	A	21XX0T01	Table of Organization & Equipment (T/O&E)
	A	21XX0T13	Mid Course Exam
2146.04.01ap	A	21XX0T01	Table of Organization & Equipment (T/O&E)
	A	21XX0T13	Mid Course Exam
2146.04.01aq	A	21XX0T01	Table of Organization & Equipment (T/O&E)
	A	21XX0T13	Mid Course Exam
2146.04.01ar	A	21XX0T01	Table of Organization & Equipment (T/O&E)
	A	21XX0T13	Mid Course Exam
2146.04.01as	A	21XX0T01	Table of Organization & Equipment (T/O&E)
	A	21XX0T13	Mid Course Exam
2146.04.01at	A	21XX0T01	Table of Organization & Equipment (T/O&E)
	A	21XX0T13	Mid Course Exam
2146.04.01av	A	21XX0T11	Maintenance Adminsitration
	A	21XX0T13	Mid Course Exam
2146.04.01aw	A	21XX0T11	Maintenance Adminsitration
	A	21XX0T13	Mid Course Exam
2146.04.01ax	A	21XX0T11	Maintenance Adminsitration
	A	21XX0T13	Mid Course Exam
2146.04.01ay	A	21XX0T11	Maintenance Adminsitration
	A	21XX0T13	Mid Course Exam
2146.04.01az	A	21XX0T11	Maintenance Adminsitration
	A	21XX0T13	Mid Course Exam
2146.04.01ba	A	21XX0T11	Maintenance Adminsitration
	A	21XX0T13	Mid Course Exam
2146.04.01bb	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bc	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bd	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook

TANK SYSTEM TECHNICIAN COURSE (MLA1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON_ID	LESSON_TITLE
	A	21XX0T13	Mid Course Exam
2146.04.01be	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bf	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bg	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bh	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bi	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bj	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bk	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bl	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bm	A	21XX0T05	Shop Supply / Defense Logistics Agency Handbook
	A	21XX0T13	Mid Course Exam
2146.04.01bn	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam
2146.04.01bo	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam
2146.04.01bp	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam
2146.04.01bq	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam
2146.04.01br	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam
2146.04.01bs	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam
2146.04.01bt	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam
2146.04.01bu	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam
2146.04.01bv	A	21XX0T02	Publications
	A	21XX0T13	Mid Course Exam

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
2146.04.01bw	A	21XX0T10	Operational Risk Management/Shop Safety
	A	21XX0T13	Mid Course Exam
2146.04.01bx	A	21XX0T10	Operational Risk Management/Shop Safety
	A	21XX0T13	Mid Course Exam
2146.04.01by	A	21XX0T10	Operational Risk Management/Shop Safety
	A	21XX0T13	Mid Course Exam
2146.04.01bz	A	21XX0T10	Operational Risk Management/Shop Safety
	A	21XX0T13	Mid Course Exam
2146.04.01ca	B	21460B02	Joint Oil Analysis Program (JOAP)
	B	21460B11	JKT B Annex
2146.04.01cb	B	21460B02	Joint Oil Analysis Program (JOAP)
	B	21460B11	JKT B Annex
2146.04.01cc	B	21460B02	Joint Oil Analysis Program (JOAP)
	B	21460B11	JKT B Annex
2146.04.01cd	B	21460B02	Joint Oil Analysis Program (JOAP)
	B	21460B11	JKT B Annex
2146.04.01ce	B	21460B02	Joint Oil Analysis Program (JOAP)
	B	21460B11	JKT B Annex
2146.04.01cf	B	21460B02	Joint Oil Analysis Program (JOAP)
	B	21460B11	JKT B Annex
2146.04.01cg	B	21460B02	Joint Oil Analysis Program (JOAP)
	B	21460B11	JKT B Annex
2146.04.01ch	B	21460B10	Corrosion Prevention and Control (CPAC)
	B	21460B11	JKT B Annex
2146.04.01ci	B	21460B10	Corrosion Prevention and Control (CPAC)
	B	21460B11	JKT B Annex
2146.04.01cj	B	21460B10	Corrosion Prevention and Control (CPAC)
	B	21460B11	JKT B Annex
2146.04.01ck	B	21460B01	Not Mission Capable Criteria
	B	21460B11	JKT B Annex
2146.04.01cl	B	21460B01	Not Mission Capable Criteria
	B	21460B11	JKT B Annex
2146.04.01cm	B	21460B01	Not Mission Capable Criteria
	B	21460B11	JKT B Annex
2146.04.01cn	B	21460B03	Battlefield Damage Assessment Repair (BDAR)
	B	21460B11	JKT B Annex
2146.04.01co	B	21460B03	Battlefield Damage Assessment Repair (BDAR)

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

LOCATION OF LEARNING OBJECTIVES REPORT

LO	ANNEX	LESSON ID	LESSON TITLE
	B	21460B11	JKT B Annex
2146.04.01cp	B	21460B03	Battlefield Damage Assessment Repair (BDAR)
	B	21460B11	JKT B Annex
2146.04.01cq	B	21460B03	Battlefield Damage Assessment Repair (BDAR)
	B	21460B11	JKT B Annex
2146.04.01cr	B	21460B01	Not Mission Capable Criteria
2146.04.01cs	A	21XX0T10	Operational Risk Management/Shop Safety
2146.04.01ct	A	21XX0T10	Operational Risk Management/Shop Safety
2146.04.01cu	A	21XX0T10	Operational Risk Management/Shop Safety
2146.04.01cv	B	21460B01	Not Mission Capable Criteria
2146.04.04	E	21460E12	End of Course (EOC) JPT (A1-E17)

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

ACADEMIC SUMMARY

IDENTIFIER	TITLE	HRS	TYPE
ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE			
21XX0T01	Table of Organization & Equipment (T/O&E)	2.00	T
21XX0T02	Publications	10.50	T
21XX0T03	MOS Training / ITS / Records	2.00	T
21XX0T04	Desktop / Turnover Procedures	1.50	T
21XX0T05	Shop Supply / Defense Logistics Agency Handbook	3.00	T
21XX0T06	Product Quality Deficiency Report (PQDR)	1.50	T
21XX0T07	Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)	2.50	T
21XX0T08	Preventative Maintenance / Corrective Maintenance / Quality Control	2.00	T
21XX0T09	Modifications	2.00	T
21XX0T10	Operational Risk Management/Shop Safety	2.00	T
21XX0T11	Maintenance Adminsitration	3.50	T
21XX0T12	PC MIMMS	4.00	LP
21XX0T13	Mid Course Exam	3.00	E
Annex Total :		39.50	
ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS			
21460B01	Not Mission Capable Criteria	1.00	T
21460B02	Joint Oil Analysis Program (JOAP)	1.00	T
21460B03	Battlefield Damage Assessment Repair (BDAR)	1.00	T
21460B04	Rigging and Recovery	7.00	T
21460B05	Wiring Harness Repair	7.00	T
21460B06	Hose Fabrication	7.00	T
21460B07	Test Measurement and Diagnostic Equipment (TMDE)	7.00	T
21460B08	Hydraulics	7.00	T
21460B09	Electronics	7.00	T
21460B10	Corrosion Prevention and Control (CPAC)	1.50	T
21460B11	JKT B Annex	4.00	E
Annex Total :		50.50	
ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING			
21460C01	Introduction to Annex C M1A1 Hull Systems	0.50	LP
21460C02	AGT 1500 Engine Operation	9.75	T
21460C03	X1100-3B Transmission Operation	3.75	T
21460C04	M1A1 Hull System Schematics	14.00	T
21460C05	Trouble Shooting M1A1 Hull Systems	14.00	T
21460C06	Repair M1A1 Hull System Electrical Components	7.00	T
21460C07	Repair M1A1 Final Drive Assembly	3.25	T
21460C08	Repair X1100-3B Transmission	10.75	T
21460C09	JKT and Review (C02-C08)	1.50	E
21460C10	JPT and Review (C02-C08)	5.50	E
Annex Total :		70.00	
ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING			
21460D01	Introduction to Annex D M1A1 Turret Systems and Components	0.50	LP

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

ACADEMIC SUMMARY

IDENTIFIER	TITLE	HRS	TYPE
21460D02	Fire Control System Functioning	6.50	T
21460D03	Thermal Imaging System Functioning	3.75	T
21460D04	M1A1 Turret Systems Schematics	10.25	T
21460D05	M1A1 Hydraulic Systems Functioning	3.25	T
21460D06	Trouble Shooting M1A1 Turret Systems and Components	21.00	T
21460D07	Repair M1A1 Turret Components	7.00	T
21460D08	M1A1 External Auxiliary Power Unit (EAPU)	3.50	T
21460D09	M1A1 Fire Suppression System	3.75	T
21460D10	Recoil Mechanism Wiper Seal Replacement	7.00	T
21460D11	Traverse Mechanism and Main Gun Rotor	0.75	T
21460D12	Bore Scoping the M1A1 Main Gun	6.25	T
21460D13	JPT and Review (D2-D12)	7.00	E
21460D14	JKT and Review (D2-D13)	3.25	E

Annex Total : 83.75

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

21460E01	Introduction to Annex E	0.25	LP
21460E02	M88A2 Hercules Introduction	0.50	LP
21460E03	M88A2 Hydraulic Systems	6.50	T
21460E04	Troubleshoot M88A2	7.00	T
21460E05	Repair M88A2/AVLB Engine	14.00	T
21460E06	Repair M88A2 Transmission	10.25	T
21460E07	Maintain AVLB Transmission	7.00	T
21460E08	Maintain AVLB Launcher Systems	3.75	T
21460E09	Maintain AVLB Electrical System	3.25	T
21460E10	Maintain AVLB Fire Suppression System	3.75	T
21460E11	JKT and Review (E02-E17)	4.00	E
21460E12	End of Course (EOC) JPT (A1-E17)	7.00	E

Annex Total : 67.25

Total Academic Hours : 311.00

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION IV - CONCEPT CARDS

ADMINISTRATIVE SUMMARY

<u>IDENTIFIER</u>	<u>TITLE</u>	<u>HRS</u>	<u>TYPE</u>
ANNEX Z - ADMINISTRATIVE			
21460Z01	In Processing	3.00	ADM
21460Z02	Out Processing/Graduation	3.00	ADM
21460Z03	Commanders Time	43.00	ADM

Total Administrative Hours : 49.00

Total POI Hours : 360.00

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T01

HOURS: 2.00

TITLE: Table of Organization & Equipment (T/O&E)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	1.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify references for T/O&E, in accordance with the references. (2146.04.01an)
2. Given applicable resources, identify what gives a command authority to hold and use resources, in accordance with the references. (2146.04.01ao)
3. Given applicable resources, use TFS website to locate T/O&E for specific commands, in accordance with the references. (2146.04.01ap)
4. Given applicable resources, use T/O&E to identify unit capabilities, in accordance with the references. (2146.04.01aq)
5. Given applicable resources, identify the columns of information on the T/O&E, in accordance with the references. (2146.04.01ar)
6. Given applicable resources, identify procedures for submitting T/O&E change request, in accordance with the references. (2146.04.01as)
7. Given applicable resources, identify the three manning levels/priorities, in accordance with the references. (2146.04.01at)

NOTE(S):

Students will access TFS website www.mccdc.usmc.mil/tfs. Website is controled access and requires a user name and password. Instructor will have to access website two weeks prior to class and request user name and password. Instructor will provide user name and password so students can utilize website.

REFERENCE

1. Total Force Structure Process

REFERENCE #

MCO 5311.1C



TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T01

HOURS: 2.00

TITLE: Table of Organization & Equipment (T/O&E)

2. MIMMS Field Procedures Manual

MCO P4790.2_

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T02

HOURS: 10.50

TITLE: Publications

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	7.00	6:1
PA	3.50	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify publication references, in accordance with the references. (2146.04.01bn)
2. Given applicable resources, utilize MCEPL CD, in accordance with the references. (2146.04.01bo)
3. Given applicable resources, utilize USMC web site to find publications, in accordance with the references. (2146.04.01bp)
4. Given applicable resources, identify publication requirements based on mission and the TO/E, in accordance with the references. (2146.04.01bq)
5. Given applicable resources, utilize PLMS to conduct quarterly reconciliation, in accordance with the references. (2146.04.01br)
6. Given applicable resources, identify types of inventories, in accordance with the references. (2146.04.01bs)
7. Given applicable resources, identify non-technical publication requirements, in accordance with the references. (2146.04.01bt)
8. Given applicable resources, identify process to order publications, in accordance with the references. (2146.04.01bu)
9. Given applicable resources, add required changes to publications, in accordance with the references. (2146.04.01bv)

NOTE(S):

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T02

HOURS: 10.50

TITLE: Publications

Access Total Force Structure (TFS) WEBSITE http://www.mccdc.usmc.mil/TFS/enter_site

Access Albany WEBSITE WWW.ALA.USMC.MIL

REFERENCE

REFERENCE #

- | | |
|---|--------------|
| 1. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 2. USMC Technical Publications System | MCO P5215.17 |
| 3. Marine Corps Publication and Printing Regulations | MCO P5600.31 |
| 4. Catalog of Publications | NAVMC 2761 |
| 5. Index of Authorized Publications for Equipment Support | SL 1-2 |
| 6. Index of Authorized Publications for Equipment Support | SL 1-3 |
| 7. Publication Information for Marine Corps Equipment | TI 5600 |
| 8. Publication Library Management System | UM-PLMS |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T03

HOURS: 2.00

TITLE: MOS Training / ITS / Records

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	1.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, define the purpose of a training program, in accordance with the references. (2146.04.01a)
2. Given applicable resources, identify training references, in accordance with the references. (2146.04.01b)
3. Given applicable resources, define the components of an ITS, in accordance with the references. (2146.04.01c)
4. Given applicable resources, identify types of training schedules, in accordance with the references. (2146.04.01d)
5. Given applicable resources, establish a training schedule/priorities, in accordance with the references. (2146.04.01e)
6. Given applicable resources, establish individual training records jackets, in accordance with the references. (2146.04.01f)
7. Given applicable resources, implement a unit training plan, in accordance with the references. (2146.04.01g)

NOTE(S):

There is a 10 question quiz given in conjunction with this class.

REFERENCE

REFERENCE #

1. MIMMS Field Procedures Manual

MCO P4790.2_

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T04

HOURS: 1.50

TITLE: Desktop / Turnover Procedures

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	6:1
PA	1.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify references that establish procedures for desktop / turnover folders, in accordance with the references. (2146.04.01h)
2. Given applicable resources, identify requirements for desktop procedures, in accordance with the references. (2146.04.01i)
3. Given applicable resources, identify requirements for a turnover folder, in accordance with the references. (2146.04.01j)
4. Given applicable resources, develop an outline for a desktop, in accordance with the references. (2146.04.01k)

NOTE(S):

Students will develop an outline for a desktop during practical application.

REFERENCE

REFERENCE #

1. MIMMS Field Procedures Manual

MCO P4790.2_

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T05

HOURS: 3.00

TITLE: Shop Supply / Defense Logistics Agency Handbook

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	2.00	6:1
PA	1.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, define the purpose of the PEB, in accordance with the references. (2146.04.01bb)
2. Given applicable resources, identify procedures to account for broken units of issue, in accordance with the references. (2146.04.01bc)
3. Given applicable resources, define the purpose of shop overhead materials, in accordance with the references. (2146.04.01bd)
4. Given applicable resources, define the purpose of layette bins, in accordance with the references. (2146.04.01be)
5. Given applicable resources, identify the steps required to manage layette bins, in accordance with the references. (2146.04.01bf)
6. Given applicable resources, use FEDLOG program to research repair parts, in accordance with the references. (2146.04.01bg)
7. Given applicable resources, define the purpose of a supply deficiency report, in accordance with the references. (2146.04.01bh)
8. Given applicable resources, identify validation/reconciliation process with supporting commodities, in accordance with the references. (2146.04.01bi)
9. Given applicable resources, use the ERO's demand list (EDL) during the validation/reconciliation process, in accordance with the references. (2146.04.01bj)
10. Given applicable resources, identify the components of a CMR, in accordance with

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T05

HOURS: 3.00

TITLE: Shop Supply / Defense Logistics Agency Handbook

the references. (2146.04.01bk)

11. Given applicable resources, utilize the DLA handbook, in accordance with the references. (2146.04.01bl)

12. Given applicable resources, order parts using the DLA emergency supply operations center (ESOC), in accordance with the references. (2146.04.01bm)

REFERENCE

REFERENCE #

- | | |
|--|---------------|
| 1. Uniform Materiel Movement and Issue Priority System | MCO 4400.16_ |
| 2. Radioactive Commodities DOD SYS | MCO P4400.105 |
| 3. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 4. Ground Equipment Record Procedures | TM 4700-15/1_ |
| 5. FMF SASSY Using Unit Procedures | UM 4400-124 |
| 6. MIMMS AIS Field Maintenance Procedures | UM 4790-5 |

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T06

HOURS: 1.50

TITLE: Product Quality Deficiency Report (PQDR)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	0.50	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the references for completing PQDR's, in accordance with the references. (2146.04.01ah)
2. Given applicable resources, define the purpose of the PQDR program, in accordance with the references. (2146.04.01ai)
3. Given applicable resources, identify procedures of PQDR, in accordance with the references. (2146.04.01aj)
4. Given applicable resources, identify the categories of PQDR, in accordance with the references. (2146.04.01ak)
5. Given applicable resources, complete PQDR forms, in accordance with the references. (2146.04.01al)
6. Given applicable resources, utilize the PQDR web site, in accordance with the references. (2146.04.01am)

NOTE(S):

Students will access WEBSITE <http://notes.ala.usmc.mil/pqdrs/default.asp>

REFERENCE

REFERENCE #

- | | |
|---|--------------|
| 1. Product Quality Deficiency Report (PQDR) | MCO 4855.10 |
| 2. MIMMS Field Procedures Manual | MCO P4790.2_ |

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T07

HOURS: 2.50

TITLE: Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.50	6:1
PA	1.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify tool control references, in accordance with the references. (2146.04.01l)
2. Given applicable resources, define the types of calibration, in accordance with the references. (2146.04.01m)
3. Given applicable resources, complete calibration control records, in accordance with the references. (2146.04.01n)
4. Given applicable resources, identify when inventories are required for support equipment, in accordance with the references. (2146.04.01o)
5. Given applicable resources, use equipment SL-3 to identify components, in accordance with the references. (2146.04.01p)
6. Given applicable resources, determine procedures to account for as required items, in accordance with the references. (2146.04.01q)
7. Given applicable resources, determine procedures to account for special tool requirements, in accordance with the references. (2146.04.01r)
8. Given applicable resources, document SL-3 inventories, in accordance with the references. (2146.04.01s)

NOTE(S):

Students will access WEBSITE: <https://tmde.matcom.usmc.mil/tmde>

REFERENCE

REFERENCE #

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T07

HOURS: 2.50

TITLE: Support Equipment / Test Measurement and Diagnostic Equipment (TMDE)

- | | |
|--|---------------|
| 1. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 2. Calibraton Requirements USMC TMDE CAMP | TI 4733-15/1 |
| 3. Infantry Weapons Gauge Calibration Exchange Program | TI 4733-15/11 |
| 4. Ground Equipment Record Procedures | TM 4700-15/1_ |
| 5. FMF SASSY Using Unit Procedures | UM 4400-124 |
| 6. MIMMS AIS Field Maintenance Procedures | UM 4790-5 |

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T08

HOURS: 2.00

TITLE: Preventative Maintenance / Corrective Maintenance / Quality Control

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.25	6:1
PA	0.75	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, define the purpose of PM, in accordance with the references. (2146.04.01t)
2. Given applicable resources, identify the types of PM, in accordance with the references. (2146.04.01u)
3. Given applicable resources, complete PM roster, in accordance with the references. (2146.04.01v)
4. Given applicable resources, identify when publications can be deferred, in accordance with the references. (2146.04.01w)
5. Given applicable resources, define the purpose of CM, in accordance with the references. (2146.04.01x)
6. Given applicable resources, identify maximum repair cycle times for end items and secondary repairables, in accordance with the references. (2146.04.01y)
7. Given applicable resources, define the purpose of quality control procedures, in accordance with the references. (2146.04.01z)
8. Given applicable resources, identify who can conduct equipment check out for QC purposes, in accordance with the references. (2146.04.01aa)
9. Given applicable resources, identify when overflow maintenance may be utilized, in accordance with the references. (2146.04.01ab)

NOTE(S):

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T08

HOURS: 2.00

TITLE: Preventative Maintenance / Corrective Maintenance / Quality Control

This class will have a 15 question quiz.

REFERENCE

REFERENCE #

1. MIMMS Field Procedures Manual

MCO P4790.2_

2. Ground Equipment Record Procedures

TM 4700-15/1_

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T09

HOURS: 2.00

TITLE: Modifications

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.25	6:1
PA	0.75	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify modification procedures, in accordance with the references. (2146.04.01ac)
2. Given applicable resources, identify equipment requiring modifications, in accordance with the references. (2146.04.01ad)
3. Given applicable resources, define types of modifications, in accordance with the references. (2146.04.01ae)
4. Given applicable resources, complete modifications forms, in accordance with the references. (2146.04.01af)
5. Given applicable resources, verify a modification application, in accordance with the references. (2146.04.01ag)

NOTE(S):

This class will have a 10 question quiz.

REFERENCE

REFERENCE #

- | | |
|---|---------------|
| 1. Applicable Equipment Modification Instruction | APPLICABLE MI |
| 2. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 3. Index of Authorized Publications for Equipment Support | SL 1-2 |
| 4. Publication Information for Marine Corps Equipment | TI 5600 |
| 5. Ground Equipment Record Procedures | TM 4700-15/1_ |

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T10

HOURS: 2.00

TITLE: Operational Risk Management/Shop Safety

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	6:1
PA	1.50	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify ORM references, in accordance with the references. (2146.04.01bw)
2. Given applicable resources, utilize risk assessment codes to reduce mission hazards, in accordance with the references. (2146.04.01bz)
3. Given applicable resources, identify the definitions associated to ORM, in accordance with the references. (2146.04.01bx)
4. Given applicable resources, identify method for assigning risk assessment codes, in accordance with the references. (2146.04.01by)
5. Given applicable resources, determine safety program requirements, in accordance with the references. (2146.04.01cs)
6. Given applicable resources, monitor compliance with shop safety procedures, in accordance with the references. (2146.04.01ct)
7. Given applicable resources, implement corrective actions, in accordance with the references. (2146.04.01cu)

NOTE(S):

Students will take an on-line tutorial from the Naval Air Forces Safety Office and receive a completion certificate for passing ORM fundamentals. Students will then be shown how to apply ORM in normal shop working environments.

REFERENCE

REFERENCE #

1. Occupational Safety and Health Standards, Hazard Communication

29 CFR 1910.1200

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T10

HOURS: 2.00

TITLE: Operational Risk Management/Shop Safety

- | | |
|--|----------------------|
| 2. Hazardous Material Regulations | 49 CFR 172.704(A)(1) |
| 3. Operational Risk Management | MCO 3500.27_ |
| 4. Marine Corps Occupational Safety and Health Program (OSH) | MCO 5100.8_ |

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T11

HOURS: 3.50

TITLE: Maintenance Administration

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.50	6:1
PA	2.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify MIMMS references, in accordance with the references. (2146.04.01av)
2. Given applicable resources, interpret output reports (DPR, DTL, LM2, TAM, exceptions, EDL), in accordance with the references. (2146.04.01aw)
3. Given applicable resources, submit changes to output reports, in accordance with the references. (2146.04.01ax)
4. Given applicable resources, identify elements of an ERO tub file, in accordance with the references. (2146.04.01ay)
5. Given applicable resources, identify problems requiring reconciliation, in accordance with the references. (2146.04.01az)
6. Given applicable resources, conduct a validation/reconciliation, in accordance with the references. (2146.04.01ba)

REFERENCE

REFERENCE #

- | | |
|---------------------------------------|---------------|
| 1. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 2. Ground Equipment Record Procedures | TM 4700-15/1_ |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

LESSON ID: 21XX0T12

HOURS: 4.00

TITLE: PC MIMMS

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
CBT	3.00	6:1
L	1.00	6:1

MEDIA: CPU, PPP

LESSON PURPOSE:

This lesson is to familiarize the student with the PC MIMMS program and will be taught in conjunction with 21XXT011.

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

EXAM ID: 21XX0T13

HOURS: 3.00

TITLE: Mid Course Exam

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
X(W)	3.00	6:1

MEDIA: HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, define the purpose of a training program, in accordance with the references. (2146.04.01a)
2. Given applicable resources, identify training references, in accordance with the references. (2146.04.01b)
3. Given applicable resources, define the components of an ITS, in accordance with the references. (2146.04.01c)
4. Given applicable resources, identify types of training schedules, in accordance with the references. (2146.04.01d)
5. Given applicable resources, establish a training schedule/priorities, in accordance with the references. (2146.04.01e)
6. Given applicable resources, establish individual training records jackets, in accordance with the references. (2146.04.01f)
7. Given applicable resources, implement a unit training plan, in accordance with the references. (2146.04.01g)
8. Given applicable resources, identify references that establish procedures for desk top / turnover folders, in accordance with the references. (2146.04.01h)
9. Given applicable resources, identify requirements for desktop procedures, in accordance with the references. (2146.04.01i)
10. Given applicable resources, identify requirements for a turnover folder, in accordance with the references. (2146.04.01j)

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

EXAM ID: 21XX0T13

HOURS: 3.00

TITLE: Mid Course Exam

11. Given applicable resources, develop an outline for a desktop, in accordance with the references. (2146.04.01k)
12. Given applicable resources, identify tool control references, in accordance with the references. (2146.04.01l)
13. Given applicable resources, define the types of calibration, in accordance with the references. (2146.04.01m)
14. Given applicable resources, complete calibration control records, in accordance with the references. (2146.04.01n)
15. Given applicable resources, identify when inventories are required for support equipment, in accordance with the references. (2146.04.01o)
16. Given applicable resources, use equipment SL-3 to identify components, in accordance with the references. (2146.04.01p)
17. Given applicable resources, determine procedures to account for as required items, in accordance with the references. (2146.04.01q)
18. Given applicable resources, determine procedures to account for special tool requirements, in accordance with the references. (2146.04.01r)
19. Given applicable resources, document SL-3 inventories, in accordance with the references. (2146.04.01s)
20. Given applicable resources, define the purpose of PM, in accordance with the references. (2146.04.01t)
21. Given applicable resources, identify the types of PM, in accordance with the references. (2146.04.01u)
22. Given applicable resources, complete PM roster, in accordance with the references. (2146.04.01v)
23. Given applicable resources, identify when publications can be deferred, in accordance with the references. (2146.04.01w)
24. Given applicable resources, define the purpose of CM, in accordance with the

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

EXAM ID: 21XX0T13

HOURS: 3.00

TITLE: Mid Course Exam

- references. (2146.04.01x)
25. Given applicable resources, identify maximum repair cycle times for end items and secondary repairables, in accordance with the references. (2146.04.01y)
 26. Given applicable resources, define the purpose of quality control procedures, in accordance with the references. (2146.04.01z)
 27. Given applicable resources, identify who can conduct equipment check out for QC purposes, in accordance with the references. (2146.04.01aa)
 28. Given applicable resources, identify when overflow maintenance may be utilized, in accordance with the references. (2146.04.01ab)
 29. Given applicable resources, identify modification procedures, in accordance with the references. (2146.04.01ac)
 30. Given applicable resources, identify equipment requiring modifications, in accordance with the references. (2146.04.01ad)
 31. Given applicable resources, define types of modifications, in accordance with the references. (2146.04.01ae)
 32. Given applicable resources, complete modifications forms, in accordance with the references. (2146.04.01af)
 33. Given applicable resources, verify a modification application, in accordance with the references. (2146.04.01ag)
 34. Given applicable resources, identify the references for completing PQDR's, in accordance with the references. (2146.04.01ah)
 35. Given applicable resources, define the purpose of the PQDR program, in accordance with the references. (2146.04.01ai)
 36. Given applicable resources, identify procedures of PQDR, in accordance with the references. (2146.04.01aj)
 37. Given applicable resources, identify the categories of PQDR, in accordance with the references. (2146.04.01ak)

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

EXAM ID: 21XX0T13

HOURS: 3.00

TITLE: Mid Course Exam

38. Given applicable resources, complete PQDR forms, in accordance with the references. (2146.04.01al)
39. Given applicable resources, utilize the PQDR web site, in accordance with the references. (2146.04.01am)
40. Given applicable resources, identify references for T/O&E, in accordance with the references. (2146.04.01an)
41. Given applicable resources, identify what gives a command authority to hold and use resources, in accordance with the references. (2146.04.01ao)
42. Given applicable resources, use TFS website to locate T/O&E for specific commands, in accordance with the references. (2146.04.01ap)
43. Given applicable resources, use T/O&E to identify unit capabilities, in accordance with the references. (2146.04.01aq)
44. Given applicable resources, identify the columns of information on the T/O&E, in accordance with the references. (2146.04.01ar)
45. Given applicable resources, identify procedures for submitting T/O&E change request, in accordance with the references. (2146.04.01as)
46. Given applicable resources, identify the three manning levels/priorities, in accordance with the references. (2146.04.01at)
47. Given applicable resources, identify MIMMS references, in accordance with the references. (2146.04.01av)
48. Given applicable resources, interpret output reports (DPR, DTL, LM2, TAM, exceptions, EDL), in accordance with the references. (2146.04.01aw)
49. Given applicable resources, submit changes to output reports, in accordance with the references. (2146.04.01ax)
50. Given applicable resources, identify elements of an ERO tub file, in accordance with the references. (2146.04.01ay)
51. Given applicable resources, identify problems requiring reconciliation, in

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

EXAM ID: 21XX0T13

HOURS: 3.00

TITLE: Mid Course Exam

accordance with the references. (2146.04.01az)

52. Given applicable resources, conduct a validation/reconciliation, in accordance with the references. (2146.04.01ba)
53. Given applicable resources, define the purpose of the PEB, in accordance with the references. (2146.04.01bb)
54. Given applicable resources, identify procedures to account for broken units of issue, in accordance with the references. (2146.04.01bc)
55. Given applicable resources, define the purpose of shop overhead materials, in accordance with the references. (2146.04.01bd)
56. Given applicable resources, define the purpose of layette bins, in accordance with the references. (2146.04.01be)
57. Given applicable resources, identify the steps required to manage layette bins, in accordance with the references. (2146.04.01bf)
58. Given applicable resources, use FEDLOG program to research repair parts, in accordance with the references. (2146.04.01bg)
59. Given applicable resources, define the purpose of a supply deficiency report, in accordance with the references. (2146.04.01bh)
60. Given applicable resources, identify validation/reconciliation process with supporting commodities, in accordance with the references. (2146.04.01bi)
61. Given applicable resources, use the ERO's demand list (EDL) during the validation/reconciliation process, in accordance with the references. (2146.04.01bj)
62. Given applicable resources, identify the components of a CMR, in accordance with the references. (2146.04.01bk)
63. Given applicable resources, utilize the DLA handbook, in accordance with the references. (2146.04.01bl)
64. Given applicable resources, order parts using the DLA emergency supply operations

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

EXAM ID: 21XX0T13

HOURS: 3.00

TITLE: Mid Course Exam

center (ESOC), in accordance with the references. (2146.04.01bm)

65. Given applicable resources, identify publication references, in accordance with the references. (2146.04.01bn)
66. Given applicable resources, utilize MCPEL CD, in accordance with the references. (2146.04.01bo)
67. Given applicable resources, utilize USMC web site to find publications, in accordance with the references. (2146.04.01bp)
68. Given applicable resources, identify publication requirements based on mission and the TO/E, in accordance with the references. (2146.04.01bq)
69. Given applicable resources, utilize PLMS to conduct quarterly reconciliation, in accordance with the references. (2146.04.01br)
70. Given applicable resources, identify types of inventories, in accordance with the references. (2146.04.01bs)
71. Given applicable resources, identify non-technical publication requirements, in accordance with the references. (2146.04.01bt)
72. Given applicable resources, identify process to order publications, in accordance with the references. (2146.04.01bu)
73. Given applicable resources, add required changes to publications, in accordance with the references. (2146.04.01bv)
74. Given applicable resources, identify ORM references, in accordance with the references. (2146.04.01bw)
75. Given applicable resources, identify the definitions associated to ORM, in accordance with the references. (2146.04.01bx)
76. Given applicable resources, identify method for assigning risk assessment codes, in accordance with the references. (2146.04.01by)
77. Given applicable resources, utilize risk assessment codes to reduce mission hazards, in accordance with the references. (2146.04.01bz)

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX A - GROUND ORDNANCE INTERMEDIATE LEVEL SUPERVISOR'S COURSE

EXAM ID: 21XX0T13

HOURS: 3.00

TITLE: Mid Course Exam

REFERENCE

REFERENCE #

1. Occupational Safety and Health Standards, Hazard Communication	29 CFR 1910.1200
2. Hazardous Material Regulations	49 CFR 172.704(A)(1)
3. Applicable Equipment Modification Instruction	APPLICABLE MI
4. Operational Risk Management	MCO 3500.27_
5. Uniform Materiel Movement and Issue Priority System	MCO 4400.16_
6. MARINE CORPS TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE) CALIBRATIONS AND MAINTENANCE PROGRAM (CAMP)	MCO 4733.1
7. Product Quality Deficiency Report (PQDR)	MCO 4855.10
8. Marine Corps Occupational Safety and Health Program (OSH)	MCO 5100.8_
9. Total Force Structure Process	MCO 5311.1C
10. Radioactive Commodities DOD SYS	MCO P4400.105
11. Consumer Level Supply Policy Manual	MCO P4400.150
12. MARINE CORPS INTEGRATED MAINTENANCE MANAGEMENT SYSTEM (MIMMS) INTRODUCTION MANUAL	MCO P4790.1
13. MIMMS Field Procedures Manual	MCO P4790.2_
14. USMC Technical Publications System	MCO P5215.17
15. Marine Corps Publication and Printing Regulations	MCO P5600.31
16. Catalog of Publications	NAVMC 2761
17. Index of Authorized Publications for Equipment Support	SL 1-2
18. Index of Authorized Publications for Equipment Support	SL 1-3
19. Calibraton Requirements USMC TMDE CAMP	TI 4733-15/1
20. Infantry Weapons Gauge Calibration Exchange Program	TI 4733-15/11
21. Publication Information for Marine Corps Equipment	TI 5600
22. Ground Equipment Record Procedures	TM 4700-15/1_
23. Publication Library Management System	UM-PLMS

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B01

HOURS: 1.00

TITLE: Not Mission Capable Criteria

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the purpose of a TI, in accordance with the references. (2146.04.01ck)
2. Given applicable resources, identify information on a TI, in accordance with the references. (2146.04.01cl)
3. Given applicable resources, explain deadline determination procedures of a TI, in accordance with the references. (2146.04.01cm)
4. Given applicable resources, utilize the glossary to assist in deadline determination procedures of the TI, in accordance with the references. (2146.04.01cv)
5. Given applicable resources, determine if a vehicle is deadlined, in accordance with the references. (2146.04.01cr)

REFERENCE

REFERENCE #

- | | |
|--|----------------|
| 1. Deadline Criteria | TI 2320-15/55_ |
| 2. Not Mission Capable (Deadline) Criteria M1A1 Tank | TI-08953A-15/4 |

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B02

HOURS: 1.00

TITLE: Joint Oil Analysis Program (JOAP)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1

MEDIA: HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the purpose of JOAP, in accordance with the references. (2146.04.01ca)
2. Given applicable resources, identify sampling methods, in accordance with the references. (2146.04.01cb)
3. Given applicable resources, identify sampling intervals, in accordance with the references. (2146.04.01cc)
4. Given applicable resources, complete sampling forms and documents, in accordance with the references. (2146.04.01cd)
5. Given applicable resources, identify unit responsibilities, in accordance with the references. (2146.04.01ce)
6. Given applicable resources, conduct an analysis, in accordance with the references. (2146.04.01cf)
7. Given applicable resources, identify program management offices, in accordance with the references. (2146.04.01cg)

REFERENCE

REFERENCE #

- | | |
|---|---------------|
| 1. Joint Oil Analysis Program | MCO 4731.1_ |
| 2. US Marine Corps Joint Oil Analysis Program | TI 4731-14/1C |
| 3. Ground Equipment Record Procedures | TM 4700-15/1_ |

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B03

HOURS: 1.00

TITLE: Battlefield Damage Assessment Repair (BDAR)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
GL	1.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, define Battlefield Damage and Repair (BDAR), in accordance with the references. (2146.04.01cn)
2. Given applicable resources, identify the basic rules of Battlefield Damage and Repair (BDAR), in accordance with the references. (2146.04.01co)
3. Given applicable resources, identify the maintenance procedures for BDAR, in accordance with the references. (2146.04.01cp)
4. Given applicable resources, identify BDAR assessment and repair forms, in accordance with the references. (2146.04.01cq)

REFERENCE

REFERENCE #

1. Battle Field Damage Assessment Report

FMFRP 4-34

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B04

HOURS: 7.00

TITLE: Rigging and Recovery

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	2.00	6:1
PA	5.00	6:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M88A2 systems, in accordance with the references. (2146.03.20)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify rigging and recovery references, in accordance with the references. (2146.03.20c)
2. Given applicable resources, identify recovery procedures, in accordance with the references. (2146.03.20d)
3. Given applicable resources, identify rigging procedures, in accordance with the references. (2146.03.20e)
4. Given applicable resources, identify rigging and recovery safety procedures, in accordance with the references. (2146.03.20f)
5. Given applicable resources, rig and recover ordnance vehicles, in accordance with the references. (2146.03.20g)

REFERENCE

REFERENCE #

1. Battle Field Damage Assessment Report

FMFRP 4-34

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B05

HOURS: 7.00

TITLE: Wiring Harness Repair

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	2.00	6:1
PA	5.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M1A1 hull electrical system components, in accordance with the references. (2146.03.06)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, inspect a wiring harness, in accordance with the references. (2146.03.06b)
2. Given applicable resources, repair a wiring harness, in accordance with the references. (2146.03.06c)
3. Given applicable resources, conduct cable boot removal and installation, in accordance with the references. (2146.03.06d)
4. Given applicable resources, repair wires using soldering iron, solder sleeve shield termination kit or inline splice, in accordance with the references. (2146.03.06e)
5. Given applicable resources, replace unserviceable connector pins, in accordance with the references. (2146.03.06f)
6. Given applicable resources, perform wire replacement using the wire pull method, in accordance with the references. (2146.03.06g)
7. Given applicable resources, perform wire replacement using the external replacement method, in accordance with the references. (2146.03.06h)
8. Given applicable resources, repair shielded / twisted wire pair cables, in accordance with the references. (2146.03.06i)
9. Given applicable resources, install heat shrink on repaired wires and cables, in accordance with the references. (2146.03.06j)
10. Given applicable resources, repair cable sockets using harness tape repair method, in accordance with the references. (2146.03.06k)

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B05

HOURS: 7.00

TITLE: Wiring Harness Repair

11. Given applicable resources, install cable terminal lugs, in accordance with the references. (2146.03.061)

REFERENCE

REFERENCE #

- | | |
|---|------------------|
| 1. Intermediate Maintenance Light Armored Vehicle, LAV-25 | TM 08594A-34/9 |
| 2. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 1 of 2 | TM 08953A-34/6-1 |
| 3. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 2 of 2 | TM 08953A-34/6-2 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B06

HOURS: 7.00

TITLE: Hose Fabrication

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	2.00	6:1
PA	5.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M1A1 turret hydraulic system components, in accordance with the references. (2146.03.13)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify types of hoses and fittings, in accordance with the references. (2146.03.13c)
2. Given applicable resources, inspect a hose to determine serviceability, in accordance with the references. (2146.03.13d)
3. Given applicable resources, manufacture a hose, in accordance with the references. (2146.03.13e)
4. Given applicable resources, install a hose to a fitting, in accordance with the references. (2146.03.13f)
5. Given applicable resources, pressure test a hose, in accordance with the references. (2146.03.13g)

NOTE(S):

During the practical application/Lab portion of this class the students will fabricate a hose, install fittings, and pressure tests.

REFERENCE

REFERENCE #

- | | |
|--|---------------|
| 1. Light Armored Vehicle, LAV-25 | SL-4-08594A |
| 2. Hose Assembly Fabrication Instruction for LAV and MEWSS | TI 8400-35/10 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B07

HOURS: 7.00

TITLE: Test Measurement and Diagnostic Equipment (TMDE)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	4.00	6:1
PA	3.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, utilize a multimeter, in accordance with the references. (2146.03.01ab)
2. Given applicable resources, utilize a torque wrench, in accordance with the references. (2146.03.01ac)
3. Given applicable resources, utilize a micrometer, in accordance with the references. (2146.03.01ad)
4. Given applicable resources, utilize vernier calipers, in accordance with the references. (2146.03.01ae)
5. Given applicable resources, utilize gages to perform pressure checks, in accordance with the references. (2146.03.01af)

NOTE(S):

During Practical Application/Lab students will utilize TMDE to gauge, mic, torque, read, and measure equipment specifications.

REFERENCE

REFERENCE #

- | | |
|---|---------------|
| 1. Calibraton Requirements USMC TMDE CAMP | TI 4733-15/1 |
| 2. Ground Equipment Record Procedures | TM 4700-15/1_ |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B08

HOURS: 7.00

TITLE: Hydraulics

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	7.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M1A1 turret hydraulic system components, in accordance with the references. (2146.03.13)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, explain hydraulic theory of operation, in accordance with the references. (2146.03.13j)
2. Given applicable resources, identify hydraulic principles, in accordance with the references. (2146.03.13k)
3. Given applicable resources, identify hydraulic symbols, in accordance with the references. (2146.03.13i)
4. Given applicable resources, identify hydraulic system components, in accordance with the references. (2146.03.13h)
5. Given applicable resources, identify classification, types, and operation of valves, in accordance with the references. (2146.03.13m)
6. Given applicable resources, analyze hydraulic schematics, in accordance with the references. (2146.03.13l)

REFERENCE

REFERENCE #

1. John Deere Hydraulic Reference Book

JOHN DEERE HYDRAULIC

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B09

HOURS: 7.00

TITLE: Electronics

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	7.00	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify electrical safety hazards, in accordance with the references. (2146.03.01t)
2. Given applicable resources, identify electrostatic discharge effects, in accordance with the references. (2146.03.01u)
3. Given applicable resources, identify the sources of electricity, in accordance with the references. (2146.03.01v)
4. Given applicable resources, define voltage (electrical pressure), in accordance with the references. (2146.03.01w)
5. Given applicable resources, define amperage (current flow), in accordance with the references. (2146.03.01x)
6. Given applicable resources, define resistance (opposition to electrical flow), in accordance with the references. (2146.03.01y)
7. Given applicable resources, explain relationships of voltage, current, and resistance (Ohm's law), in accordance with the references. (2146.03.01z)
8. Given applicable resources, use metric terms to identify electrical measurements, in accordance with the references. (2146.03.01aa)
9. Given applicable resources, interpret basic terms associated with electricity, in accordance with the references. (2146.03.01ag)
10. Given applicable resources, explain the differences between insulators and conductors, in accordance with the references. (2146.03.01am)

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B09

HOURS: 7.00

TITLE: Electronics

11. Given applicable resources, identify the characteristics of a simple circuit, in accordance with the references. (2146.03.01an)
12. Given applicable resources, identify the characteristics of a series circuit, in accordance with the references. (2146.03.01ao)
13. Given applicable resources, measure voltage with a multimeter, in accordance with the references. (2146.03.01ap)
14. Given applicable resources, measure resistance with a multimeter, in accordance with the references. (2146.03.01aq)
15. Given applicable resources, measure continuity with a multimeter, in accordance with the references. (2146.03.01ar)
16. Given applicable resources, measure current with a multimeter, in accordance with the references. (2146.03.01as)
17. Given applicable resources, identify electrical component characteristics (capacitors, diodes, transistors, LEDs, inductors, relays, fuses, circuit breakers, transformers, power supplies), in accordance with the references. (2146.03.01at)
18. Given applicable resources, identify characteristics of Direct Current (DC) versus Alternating Current (AC), in accordance with the references. (2146.03.01au)
19. Given applicable resources, identify schematic symbols, in accordance with the references. (2146.03.01av)
20. Given applicable resources, identify characteristics of a parallel circuit, in accordance with the references. (2146.03.01aw)
21. Given applicable resources, identify characteristics of a series-parallel circuit, in accordance with the references. (2146.03.01ax)
22. Given applicable resources, interpret schematic diagrams, in accordance with the references. (2146.03.01ay)
23. Given applicable resources, identify AC waveform types, in accordance with the references. (2146.03.01az)

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B09

HOURS: 7.00

TITLE: Electronics

24. Given applicable resources, measure AC waveform, in accordance with the references. (2146.03.01ba)
25. Given applicable resources, describe the difference between analog and digital signals, in accordance with the references. (2146.03.01bb)
26. Given applicable resources, perform electronic troubleshooting, in accordance with the references. (2146.03.01bc)
27. Given applicable resources, identify electric motor/generator functioning, in accordance with the references. (2146.03.01bd)
28. Given applicable resources, identify electrical relays/time delay circuits, in accordance with the references. (2146.03.01be)

REFERENCE

REFERENCE #

1. John Deere Electric handbook

JOHN DEERE ELECTRIC

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

LESSON ID: 21460B10

HOURS: 1.50

TITLE: Corrosion Prevention and Control (CPAC)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.50	6:1

MEDIA: CPU, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the four elements of corrosion, in accordance with the references. (2146.04.01ch)
2. Given applicable resources, identify five types of corrosion, in accordance with the references. (2146.04.01ci)
3. Given applicable resources, apply the corrosion prevention process, in accordance with the references. (2146.04.01cj)

REFERENCE

REFERENCE #

- | | |
|--|---------------|
| 1. Corrosion Prevention and Control (CPAC) Program | MCO 4790.18 |
| 2. Corrosion Control for Marine Corps Equipment | TM 3080-12 |
| 3. Ground Equipment Record Procedures | TM 4700-15/1_ |
| 4. Organizational Corrosion Prevention and Control | TM 4795-12 |
| 5. Direct Support Corrosion Prevention and Control | TM 4795-34 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

EXAM ID: 21460B11

HOURS: 4.00

TITLE: JKT B Annex

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.20	6:1
X(W)	3.80	6:1

MEDIA: HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)
2. Given applicable resources, maintain M1A1 turret hydraulic system components, in accordance with the references. (2146.03.13)
3. Given applicable resources, maintain M1A1 hull electrical system components, in accordance with the references. (2146.03.06)
4. Given applicable resources, maintain M88A2 systems, in accordance with the references. (2146.03.20)
5. Given applicable resources, manage maintenance functional areas, in accordance with the references. (2146.04.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify electrical safety hazards, in accordance with the references. (2146.03.01t)
2. Given applicable resources, identify electrostatic discharge effects, in accordance with the references. (2146.03.01u)
3. Given applicable resources, identify the sources of electricity, in accordance with the references. (2146.03.01v)
4. Given applicable resources, define voltage (electrical pressure), in accordance with the references. (2146.03.01w)
5. Given applicable resources, define amperage (current flow), in accordance with the references. (2146.03.01x)
6. Given applicable resources, define resistance (opposition to electrical flow), in accordance with the references. (2146.03.01y)
7. Given applicable resources, explain relationships of voltage, current, and resistance (Ohm's law), in accordance with the references. (2146.03.01z)

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

EXAM ID: 21460B11

HOURS: 4.00

TITLE: JKT B Annex

8. Given applicable resources, use metric terms to identify electrical measurements, in accordance with the references. (2146.03.01aa)
9. Given applicable resources, utilize a multimeter, in accordance with the references. (2146.03.01ab)
10. Given applicable resources, utilize a torque wrench, in accordance with the references. (2146.03.01ac)
11. Given applicable resources, utilize a micrometer, in accordance with the references. (2146.03.01ad)
12. Given applicable resources, utilize vernier calipers, in accordance with the references. (2146.03.01ae)
13. Given applicable resources, utilize gages to perform pressure checks, in accordance with the references. (2146.03.01af)
14. Given applicable resources, interpret basic terms associated with electricity, in accordance with the references. (2146.03.01ag)
15. Given applicable resources, explain the differences between insulators and conductors, in accordance with the references. (2146.03.01am)
16. Given applicable resources, identify the characteristics of a simple circuit, in accordance with the references. (2146.03.01an)
17. Given applicable resources, identify the characteristics of a series circuit, in accordance with the references. (2146.03.01ao)
18. Given applicable resources, measure voltage with a multimeter, in accordance with the references. (2146.03.01ap)
19. Given applicable resources, measure resistance with a multimeter, in accordance with the references. (2146.03.01aq)
20. Given applicable resources, measure continuity with a multimeter, in accordance with the references. (2146.03.01ar)
21. Given applicable resources, measure current with a multimeter, in accordance with

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

EXAM ID: 21460B11

HOURS: 4.00

TITLE: JKT B Annex

the references. (2146.03.01as)

22. Given applicable resources, identify electrical component characteristics (capacitors, diodes, transistors, LEDs, inductors, relays, fuses, circuit breakers, transformers, power supplies), in accordance with the references. (2146.03.01at)
23. Given applicable resources, identify characteristics of Direct Current (DC) versus Alternating Current (AC), in accordance with the references. (2146.03.01au)
24. Given applicable resources, identify schematic symbols, in accordance with the references. (2146.03.01av)
25. Given applicable resources, identify characteristics of a parallel circuit, in accordance with the references. (2146.03.01aw)
26. Given applicable resources, identify characteristics of a series-parallel circuit, in accordance with the references. (2146.03.01ax)
27. Given applicable resources, interpret schematic diagrams, in accordance with the references. (2146.03.01ay)
28. Given applicable resources, identify AC waveform types, in accordance with the references. (2146.03.01az)
29. Given applicable resources, measure AC waveform, in accordance with the references. (2146.03.01ba)
30. Given applicable resources, describe the difference between analog and digital signals, in accordance with the references. (2146.03.01bb)
31. Given applicable resources, perform electronic troubleshooting, in accordance with the references. (2146.03.01bc)
32. Given applicable resources, identify electric motor/generator functioning, in accordance with the references. (2146.03.01bd)
33. Given applicable resources, identify electrical relays/time delay circuits, in accordance with the references. (2146.03.01be)
34. Given applicable resources, identify types of hoses and fittings, in accordance

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

EXAM ID: 21460B11

HOURS: 4.00

TITLE: JKT B Annex

with the references. (2146.03.13c)

35. Given applicable resources, inspect a hose to determine serviceability, in accordance with the references. (2146.03.13d)
36. Given applicable resources, manufacture a hose, in accordance with the references. (2146.03.13e)
37. Given applicable resources, install a hose to a fitting, in accordance with the references. (2146.03.13f)
38. Given applicable resources, pressure test a hose, in accordance with the references. (2146.03.13g)
39. Given applicable resources, identify hydraulic system components, in accordance with the references. (2146.03.13h)
40. Given applicable resources, identify hydraulic symbols, in accordance with the references. (2146.03.13i)
41. Given applicable resources, explain hydraulic theory of operation, in accordance with the references. (2146.03.13j)
42. Given applicable resources, identify hydraulic principles, in accordance with the references. (2146.03.13k)
43. Given applicable resources, identify classification, types, and operation of valves, in accordance with the references. (2146.03.13m)
44. Given applicable resources, analyze hydraulic schematics, in accordance with the references. (2146.03.13l)
45. Given applicable resources, inspect a wiring harness, in accordance with the references. (2146.03.06b)
46. Given applicable resources, repair a wiring harness, in accordance with the references. (2146.03.06c)
47. Given applicable resources, identify rigging and recovery references, in accordance with the references. (2146.03.20c)

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

EXAM ID: 21460B11

HOURS: 4.00

TITLE: JKT B Annex

48. Given applicable resources, identify recovery procedures, in accordance with the references. (2146.03.20d)
49. Given applicable resources, identify rigging procedures, in accordance with the references. (2146.03.20e)
50. Given applicable resources, identify rigging and recovery safety procedures, in accordance with the references. (2146.03.20f)
51. Given applicable resources, identify the purpose of JOAP, in accordance with the references. (2146.04.01ca)
52. Given applicable resources, identify sampling methods, in accordance with the references. (2146.04.01cb)
53. Given applicable resources, identify sampling intervals, in accordance with the references. (2146.04.01cc)
54. Given applicable resources, complete sampling forms and documents, in accordance with the references. (2146.04.01cd)
55. Given applicable resources, identify unit responsibilities, in accordance with the references. (2146.04.01ce)
56. Given applicable resources, conduct an analysis, in accordance with the references. (2146.04.01cf)
57. Given applicable resources, identify program management offices, in accordance with the references. (2146.04.01cg)
58. Given applicable resources, identify the four elements of corrosion, in accordance with the references. (2146.04.01ch)
59. Given applicable resources, identify five types of corrosion, in accordance with the references. (2146.04.01ci)
60. Given applicable resources, apply the corrosion prevention process, in accordance with the references. (2146.04.01cj)
61. Given applicable resources, define Battlefield Damage and Repair (BDAR), in

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

EXAM ID: 21460B11

HOURS: 4.00

TITLE: JKT B Annex

accordance with the references. (2146.04.01cn)

62. Given applicable resources, identify the basic rules of Battlefield Damage and Repair (BDAR), in accordance with the references. (2146.04.01co)

63. Given applicable resources, identify the maintenance procedures for BDAR, in accordance with the references. (2146.04.01cp)

64. Given applicable resources, identify BDAR assessment and repair forms, in accordance with the references. (2146.04.01cq)

65. Given applicable resources, identify the purpose of a TI, in accordance with the references. (2146.04.01ck)

66. Given applicable resources, identify information on a TI, in accordance with the references. (2146.04.01cl)

67. Given applicable resources, explain deadline determination procedures of a TI, in accordance with the references. (2146.04.01cm)

REFERENCE

REFERENCE #

1. Battle Field Damage Assessment Report	FMFRP 4-34
2. John Deere Electric handbook	JOHN DEERE ELECTRIC
3. John Deere Hydraulic Reference Book	JOHN DEERE HYDRAULIC
4. Joint Oil Analysis Program	MCO 4731.1_
5. MARINE CORPS TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE) CALIBRATIONS AND MAINTENANCE PROGRAM (CAMP)	MCO 4733.1
6. Corrosion Prevention and Control (CPAC) Program	MCO 4790.18
7. MIMMS Field Procedures Manual	MCO P4790.2_
8. Light Armored Vehicle, LAV-25	SL-4-08594A
9. Deadline Criteria	TI 2320-15/55_
10. US Marine Corps Joint Oil Analysis Program	TI 4731-14/1C
11. Calibration Requirements USMC TMDE CAMP	TI 4733-15/1
12. Hose Assembly Fabrication Instruction for LAV and MEWSS	TI 8400-35/10

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX B - ADVANCED MECHANICAL KNOWLEDGE AND SKILLS

EXAM ID: 21460B11

HOURS: 4.00

TITLE: JKT B Annex

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|--|------------------|
| 13. Not Mission Capable (Deadline) Criteria M1A1 Tank | TI-08953A-15/4 |
| 14. Intermediate Maintenance Light Armored Vehicle, LAV-25 | TM 08594A-34/9 |
| 15. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 1 of 2 | TM 08953A-34/6-1 |
| 16. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 2 of 2 | TM 08953A-34/6-2 |
| 17. Corrosion Control for Marine Corps Equipment | TM 3080-12 |
| 18. Ground Equipment Record Procedures | TM 4700-15/1_ |
| 19. Organizational Corrosion Prevention and Control | TM 4795-12 |
| 20. Direct Support Corrosion Prevention and Control | TM 4795-34 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C01

HOURS: 0.50

TITLE: Introduction to Annex C M1A1 Hull Systems

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	6:1

MEDIA: CPU, PPP

LESSON PURPOSE:

This annex provides the student training in advanced turbine engine operation and diagnostics, transmission operation and use of electrical schematics and diagnostic equipment in troubleshooting. Students are afforded the opportunity to display mastery of turbine engine operation and diagnostics using electrical schematics and diagnostic equipment.

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C02

HOURS: 9.75

TITLE: AGT 1500 Engine Operation

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	6.25	6:1
PA	3.50	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)
2. Given applicable resources, maintain M1A1 fuel system components, in accordance with the references. (2146.03.04)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components and characteristics of the air management system of the turbine engine, in accordance with the references. (2146.03.01a)
2. Given applicable resources, describe the path of flow of the air management system of the turbine engine, in accordance with the references. (2146.03.01b)
3. Given applicable resources, describe the theory of operation of the air bleed valve, in accordance with the references. (2146.03.01c)
4. Given applicable resources, describe the operation of the Inlet Guide Vanes (IGV), in accordance with the reference. (2146.03.01d)
5. Given applicable resources, describe the operation of the Power Turbine Stators (PTS), in accordance with the references. (2146.03.01e)
6. Given applicable resources, identify the methods for preventing Foreign Object Damage (FOD) to the AGT 1500 turbine engine, in accordance with the references. (2146.03.01f)
7. Given applicable resources, identify AGT 1500 turbine engine electrical components and characteristics, in accordance with the references. (2146.03.01g)
8. Given applicable resources, identify AGT 1500 turbine engine lubrication system components, in accordance with the references. (2146.03.01h)
9. Given applicable resources, identify turbine engine lubricating system component

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C02

HOURS: 9.75

TITLE: AGT 1500 Engine Operation

operation, in accordance with the references. (2146.03.01i)

10. Given applicable resources, perform Digital Electronic Control Unit (DECU) clearing procedures, in accordance with the references. (2146.03.01ah)
11. Given applicable resources, perform turbine engine health check procedures, in accordance with the references. (2146.03.01ai)
12. Given applicable resources, perform turbine engine Built In Test (BIT), in accordance with the references. (2146.03.01aj)
13. Given applicable resources, perform turbine engine Inlet Guide Vane (IGV) adjustment procedures, in accordance with the references. (2146.03.01ak)
14. Given applicable resources, perform turbine engine Power Turbine Stators (PTS) adjustment procedures, in accordance with the references. (2146.03.01al)
15. Given applicable resources, identify the components and characteristics of the Electro-mechanical Fuel System (EMFS), in accordance with the references. (2146.03.04a)
16. Given applicable resources, describe how the EMFS interacts with the Digital Electronic Control Unit (DECU), in accordance with the references. (2146.03.04b)
17. Given applicable resources, identify the 5 DECU induced protective modes for the fuel management system, in accordance with the references. (2146.03.04c)

REFERENCE

REFERENCE #

- | | |
|--|-------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. General Dynamics M1A1 Characteristics Book | GD M1A1 CHARACTER |
| 3. Military Specification for the DECU | MILSPEC DECU |
| 4. Textron Lycoming DECU Book | TEXTRON DECU BOOK |
| 5. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 6. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Hull | TM 08953A-24P-1 |
| 7. Intermediate Direct Support and Intermediate General Support | TM 9-2835-255-34 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C02

HOURS: 9.75

TITLE: AGT 1500 Engine Operation

Maintenance Manual, Turbine Engine, Field Service Model AGT 1500

- | | |
|--|-------------------|
| 8. Direct Support and General Support Maintenance Repair Parts and Special Tools List for Turbine Engine, Field Service Model AGT 1500 | TM 9-2835-255-34P |
| 9. Principles of Automotive Vehicles | TM 9-8000 |
| 10. Turbine Engine Diagnostic Software 5.1 | TURBINE ENGINE |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C03

HOURS: 3.75

TITLE: X1100-3B Transmission Operation

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.50	6:1
PA	2.25	6:1

MEDIA: AIO, HO, TV, VCR, VT

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain X11003B transmission, in accordance with the references. (2146.03.17)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components and characteristics of the X1100-3B transmission, in accordance with the references. (2146.03.17a)
2. Given applicable resources, identify the theory of operation for the X1100-3B transmission input module, in accordance with the references. (2146.03.17b)
3. Given applicable resources, describe X1100-3B transmission center module theory of operation, in accordance with the references. (2146.03.17c)
4. Given applicable resources, describe X1100-3B transmission left and right output modules theory of operation, in accordance with the references. (2146.03.17d)

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. Intermediate Direct Support and Intermediate General Support Maintenance Manual for Transmission Assembly, Model X1100-3B | TM 9-2520-276-34 |
| 3. Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools List for Final Drive Assemblies, Model X1100-3B | TM 9-2520-276-34&P |
| 4. Principles of Automotive Vehicles | TM 9-8000 |
| 5. X1100-3B Transmission Student Handout | X1100-3B STU HO |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C04

HOURS: 14.00

TITLE: M1A1 Hull System Schematics

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	7.00	6:1
PA	7.00	6:1

MEDIA: CPU, HO, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, describe path of flow of the master power circuit, in accordance with the references. (2146.03.01j)
2. Given applicable resources, describe path of flow of the starter only/purge circuit, in accordance with the references. (2146.03.01k)
3. Given applicable resources, describe the path of flow of the engine start sequence, in accordance with the references. (2146.03.01l)
4. Given applicable resources, describe the path of flow of the engine stop sequence, in accordance with the references. (2146.03.01m)

REFERENCE

REFERENCE #

- | | |
|--|----------------|
| 1. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 2. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 3. Principles of Automotive Vehicles | TM 9-8000 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C05

HOURS: 14.00

TITLE: Trouble Shooting M1A1 Hull Systems

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	13.00	6:1

MEDIA: AIO, CPU, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify M1A1 hull electrical standard initial test conditions, in accordance with the references. (2146.03.01n)
2. Given applicable resources, troubleshoot/isolate hull electrical system malfunctions, in accordance with the references. (2146.03.01o)
3. Given applicable resources, repair hull electrical system malfunctions, in accordance with the references. (2146.03.01p)

REFERENCE

REFERENCE #

- | | |
|--|------------------|
| 1. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 2. Tank 120mm M1A1 Volume 1 | TM 08953A-20/2-1 |
| 3. Tank 120mm M1A1 Vol 1 | TM 08953A-20/2-2 |
| 4. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 5. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 1 of 2 | TM 08953A-34/6-1 |
| 6. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 2 of 2 | TM 08953A-34/6-2 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C06

HOURS: 7.00

TITLE: Repair M1A1 Hull System Electrical Components

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
PA	7.00	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)
2. Given applicable resources, maintain M1A1 hull electrical system components, in accordance with the references. (2146.03.06)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components of the DSESTS, in accordance with the references. (2146.03.01q)
2. Given applicable resources, perform start up procedures for the DSESTS, in accordance with the references. (2146.03.01r)
3. Given applicable resources, test components using the DSESTS, in accordance with the references. (2146.03.01s)
4. Given applicable resources, repair M1A1 hull electronic components, in accordance with the references. (2146.03.06a)

REFERENCE

REFERENCE #

- | | |
|--|------------------|
| 1. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 2. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 3. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Hull | TM 08953A-24P-1 |
| 4. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 1 of 2 | TM 08953A-34/6-1 |
| 5. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 2 of 2 | TM 08953A-34/6-2 |
| 6. Intermediate Direct Support and Intermediate General Support Maintenance Manual, Turbine Engine, Field Service Model AGT 1500 | TM 9-2835-255-34 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C06

HOURS: 7.00

TITLE: Repair M1A1 Hull System Electrical Components

7. Operations, Maintenance, and Parts Manual for Test Set,
Direct Support Electrical System Test Set for AN/USM-615 TM 9-4931-586-12-1&P
8. Operations, Maintenance, and Parts Manual for Test Set,
Direct Support Electrical System Test Set for AN/USM-615 TM 9-4931-586-12-2&P

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C07

HOURS: 3.25

TITLE: Repair M1A1 Final Drive Assembly

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.25	6:1
PA	3.00	6:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, repair M1A1 final drive assembly, in accordance with the references. (2146.03.07)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components and characteristics of the final drive assembly, in accordance with the references. (2146.03.07a)
2. Given applicable resources, identify procedures for repairing the M1A1 final drive, in accordance with the references. (2146.03.07b)

NOTE(S):

Task 2146.03.24 do not ELOs, the M88A2 output reduction unit has the same mechanical operation as the M1A1 final drive. The knowledge gained from the maintenance of the final drive is easily transferred to the output reduction unit.

REFERENCE

REFERENCE #

- | | |
|---|--------------------|
| 1. Lubrication Instruction, Tank, Combat, Full-Tracke:120-mm Gun, M1A1 | LI 08953A-12 |
| 2. Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools List for Final Drive Assemblies, Model X1100-3B | TM 9-2520-276-34&P |
| 3. Principles of Automotive Vehicles | TM 9-8000 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460C08

HOURS: 10.75

TITLE: Repair X1100-3B Transmission

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	6:1
PA	10.25	6:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain X11003B transmission, in accordance with the references. (2146.03.17)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, perform dis-assembly procedures for the X1100-3B transmission, in accordance with the references. (2146.03.17e)
2. Given applicable resources, repair the X1100-3B transmission, in accordance with the references. (2146.03.17f)
3. Given applicable resources, perform assembly procedures of the X1100-3B transmission, in accordance with the references. (2146.03.17g)

REFERENCE

REFERENCE #

1. Intermediate Direct Support and Intermediate General Support Maintenance Manual for Transmission Assembly, Model X1100-3B TM 9-2520-276-34
2. Direct Support and General Support Maintenance Repair Parts and Special Tools List for Transmission Assemblies TM 9-2520-276-34P
3. Principles of Automotive Vehicles TM 9-8000

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460C09

HOURS: 1.50

TITLE: JKT and Review (C02-C08)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.10	6:1
X(W)	1.40	6:1

MEDIA: HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)
2. Given applicable resources, maintain X11003B transmission, in accordance with the references. (2146.03.17)
3. Given applicable resources, maintain M1A1 hull electrical system components, in accordance with the references. (2146.03.06)
4. Given applicable resources, repair M1A1 final drive assembly, in accordance with the references. (2146.03.07)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components and characteristics of the air management system of the turbine engine, in accordance with the references. (2146.03.01a)
2. Given applicable resources, describe the path of flow of the air management system of the turbine engine, in accordance with the references. (2146.03.01b)
3. Given applicable resources, describe the theory of operation of the air bleed valve, in accordance with the references. (2146.03.01c)
4. Given applicable resources, describe the operation of the Inlet Guide Vanes (IGV), in accordance with the reference. (2146.03.01d)
5. Given applicable resources, describe the operation of the Power Turbine Stators (PTS), in accordance with the references. (2146.03.01e)
6. Given applicable resources, identify the methods for preventing Foreign Object Damage (FOD) to the AGT 1500 turbine engine, in accordance with the references. (2146.03.01f)
7. Given applicable resources, identify AGT 1500 turbine engine electrical components and characteristics, in accordance with the references. (2146.03.01g)

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460C09

HOURS: 1.50

TITLE: JKT and Review (C02-C08)

8. Given applicable resources, identify AGT 1500 turbine engine lubrication system components, in accordance with the references. (2146.03.01h)
9. Given applicable resources, identify turbine engine lubricating system component operation, in accordance with the references. (2146.03.01i)
10. Given applicable resources, describe path of flow of the master power circuit, in accordance with the references. (2146.03.01j)
11. Given applicable resources, describe path of flow of the starter only/purge circuit, in accordance with the references. (2146.03.01k)
12. Given applicable resources, describe the path of flow of the engine start sequence, in accordance with the references. (2146.03.01l)
13. Given applicable resources, describe the path of flow of the engine stop sequence, in accordance with the references. (2146.03.01m)
14. Given applicable resources, identify M1A1 hull electrical standard initial test conditions, in accordance with the references. (2146.03.01n)
15. Given applicable resources, troubleshoot/isolate hull electrical system malfunctions, in accordance with the references. (2146.03.01o)
16. Given applicable resources, repair hull electrical system malfunctions, in accordance with the references. (2146.03.01p)
17. Given applicable resources, identify the components of the DSESTS, in accordance with the references. (2146.03.01q)
18. Given applicable resources, perform start up procedures for the DSESTS, in accordance with the references. (2146.03.01r)
19. Given applicable resources, test components using the DSESTS, in accordance with the references. (2146.03.01s)
20. Given applicable resources, repair M1A1 hull electronic components, in accordance with the references. (2146.03.06a)

REFERENCE

REFERENCE #

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460C09

HOURS: 1.50

TITLE: JKT and Review (C02-C08)

1. General Dynamics Instructor Guide GD INSTRUCTOR
2. General Dynamcs M1A1 Characteristics Book GD M1A1 CHARACTER
3. Heath Textbook Electronics EB-6101-A / EB-6101-41 HEATH TEXTBOOK
4. Lubrication Instruction, Tank, Combat, Full-Tracked:120-mm Gun, M1A1 LI 08953A-12
5. Military Specification for the DECU MILSPEC DECU
6. Textron Lycoming DECU Book TEXTRON DECU BOOK
7. Tank 120mm M1A1 Volume 1 TM 08953A-20/2-1
8. Tank 120mm M1A1 Vol 1 TM 08953A-20/2-2
9. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 TM 08953A-24-1
10. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Hull TM 08953A-24P-1
11. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 1 of 2 TM 08953A-34/6-1
12. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 2 of 2 TM 08953A-34/6-2
13. Intermediate Direct Support and Intermediate General Support Maintenance Manual for Transmission Assembly, Model X1100-3B TM 9-2520-276-34
14. Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools List for Final Drive Assemblies, Model X1100-3B TM 9-2520-276-34&P
15. Direct Support and General Support Maintenance Repair Parts and Special Tools List for Transmission Assemblies TM 9-2520-276-34P
16. Intermediate Direct Support and Intermediate General Support Maintenance Manual, Turbine Engine, Field Service Model AGT 1500 TM 9-2835-255-34
17. Direct Support and General Support Maintenance Repair Parts and Special Tools List for Turbine Engine, Field Service Model AGT 1500 TM 9-2835-255-34P
18. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 TM 9-4931-586-12-1&P
19. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 TM 9-4931-586-12-2&P

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460C09

HOURS: 1.50

TITLE: JKT and Review (C02-C08)

20. Principles of Automotive Vehicles

TM 9-8000

21. Turbine Engine Diagnostic Software 5.1

TURBINE ENGINE

22. X1100-3B Transmission Student Handout

X1100-3B STU HO

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460C10

HOURS: 5.50

TITLE: JPT and Review (C02-C08)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.25	6:1
X(P)	5.25	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)
2. Given applicable resources, maintain X11003B transmission, in accordance with the references. (2146.03.17)
3. Given applicable resources, maintain M1A1 hull electrical system components, in accordance with the references. (2146.03.06)
4. Given applicable resources, repair M1A1 final drive assembly, in accordance with the references. (2146.03.07)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components and characteristics of the air management system of the turbine engine, in accordance with the references. (2146.03.01a)
2. Given applicable resources, describe the path of flow of the air management system of the turbine engine, in accordance with the references. (2146.03.01b)
3. Given applicable resources, describe the theory of operation of the air bleed valve, in accordance with the references. (2146.03.01c)
4. Given applicable resources, describe the operation of the Inlet Guide Vanes (IGV), in accordance with the reference. (2146.03.01d)
5. Given applicable resources, describe the operation of the Power Turbine Stators (PTS), in accordance with the references. (2146.03.01e)
6. Given applicable resources, identify the methods for preventing Foreign Object Damage (FOD) to the AGT 1500 turbine engine, in accordance with the references. (2146.03.01f)
7. Given applicable resources, identify AGT 1500 turbine engine electrical components and characteristics, in accordance with the references. (2146.03.01g)

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460C10

HOURS: 5.50

TITLE: JPT and Review (C02-C08)

8. Given applicable resources, identify AGT 1500 turbine engine lubrication system components, in accordance with the references. (2146.03.01h)
9. Given applicable resources, identify turbine engine lubricating system component operation, in accordance with the references. (2146.03.01i)
10. Given applicable resources, describe path of flow of the master power circuit, in accordance with the references. (2146.03.01j)
11. Given applicable resources, describe path of flow of the starter only/purge circuit, in accordance with the references. (2146.03.01k)
12. Given applicable resources, describe the path of flow of the engine start sequence, in accordance with the references. (2146.03.01l)
13. Given applicable resources, describe the path of flow of the engine stop sequence, in accordance with the references. (2146.03.01m)
14. Given applicable resources, identify M1A1 hull electrical standard initial test conditions, in accordance with the references. (2146.03.01n)
15. Given applicable resources, troubleshoot/isolate hull electrical system malfunctions, in accordance with the references. (2146.03.01o)
16. Given applicable resources, repair hull electrical system malfunctions, in accordance with the references. (2146.03.01p)
17. Given applicable resources, identify the components of the DSESTS, in accordance with the references. (2146.03.01q)
18. Given applicable resources, perform start up procedures for the DSESTS, in accordance with the references. (2146.03.01r)
19. Given applicable resources, test components using the DSESTS, in accordance with the references. (2146.03.01s)
20. Given applicable resources, repair M1A1 hull electronic components, in accordance with the references. (2146.03.06a)

REFERENCE

REFERENCE #

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460C10

HOURS: 5.50

TITLE: JPT and Review (C02-C08)

1. General Dynamics Instructor Guide GD INSTRUCTOR
2. General Dynamcs M1A1 Characteristics Book GD M1A1 CHARACTER
3. Heath Textbook Electronics EB-6101-A / EB-6101-41 HEATH TEXTBOOK
4. Lubrication Instruction, Tank, Combat, Full-Tracked:120-mm Gun, M1A1 LI 08953A-12
5. Military Specification for the DECU MILSPEC DECU
6. Textron Lycoming DECU Book TEXTRON DECU BOOK
7. Tank 120mm M1A1 Volume 1 TM 08953A-20/2-1
8. Tank 120mm M1A1 Vol 1 TM 08953A-20/2-2
9. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 TM 08953A-24-1
10. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Hull TM 08953A-24P-1
11. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 1 of 2 TM 08953A-34/6-1
12. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Hull, Vol. 2 of 2 TM 08953A-34/6-2
13. Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools List for Final Drive Assemblies, Model X1100-3B TM 9-2520-276-34&P
14. Intermediate Direct Support and Intermediate General Support Maintenance Manual, Turbine Engine, Field Service Model AGT 1500 TM 9-2835-255-34
15. Direct Support and General Support Maintenance Repair Parts and Special Tools List for Turbine Engine, Field Service Model AGT 1500 TM 9-2835-255-34P
16. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 TM 9-4931-586-12-1&P
17. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 TM 9-4931-586-12-2&P
18. Principles of Automotive Vehicles TM 9-8000
19. Turbine Engine Diagnostic Software 5.1 TURBINE ENGINE
20. X1100-3B Transmission Student Handout X1100-3B STU HO

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX C - M1A1 ABRAMS TANK HULL SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460C10

HOURS: 5.50

TITLE: JPT and Review (C02-C08)

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D01

HOURS: 0.50

TITLE: Introduction to Annex D M1A1 Turret Systems and Components

METHOD HOURS S:I RATIO

L 0.50 6:1

MEDIA: CPU, PPP

LESSON PURPOSE:

This annex reinforces the student's ability to use wiring schematics and test equipment to troubleshoot electrical circuits. It also provides the student the opportunity to display mastery of using schematics and test equipment to diagnose malfunctions.

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D02

HOURS: 6.50

TITLE: Fire Control System Functioning

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	6.50	6:1

MEDIA: AIO, CPU, HO, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 turret system components, in accordance with the references. (2146.03.02)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify turret fire control components, in accordance with the references. (2146.03.02a)
2. Given applicable resources, describe the operation of the turret Line of Sight (LOS) subsystem, in accordance with the references. (2146.03.02b)
3. Given applicable resources, describe the operation of the turret stabilization subsystem, in accordance with the references. (2146.03.02c)
4. Given applicable resources, describe the operation of the turret reticle projection subsystem, in accordance with the references. (2146.03.02d)

REFERENCE

REFERENCE #

- | | |
|--|----------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 3. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D03

HOURS: 3.75

TITLE: Thermal Imaging System Functioning

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	3.75	6:1

MEDIA: AIO, CPU, HO, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 turret system components, in accordance with the references. (2146.03.02)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify turret thermal imaging system components, in accordance with the references. (2146.03.02e)
2. Given applicable resources, describe the operation of the thermal imaging system, in accordance with the references. (2146.03.02o)
3. Given applicable resources, operate the thermal imaging system, in accordance with the references. (2146.03.02p)
4. Given applicable resources, perform thermal imaging system pattern test, in accordance with the references. (2146.03.02q)

REFERENCE

REFERENCE #

- | | |
|--|------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 3. M1A1 Tank DS/GS Troubleshooting | TM 08953A-34/5-1 |
| 4. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34/5-2 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D04

HOURS: 10.25

TITLE: M1A1 Turret Systems Schematics

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	5.00	6:1
PA	5.25	6:1

MEDIA: AIO, CPU, HO, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 turret system components, in accordance with the references. (2146.03.02)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, describe path of flow of the master power circuit, in accordance with the references. (2146.03.02g)
2. Given applicable resources, describe path of flow of the main gun firing circuit, in accordance with the references. (2146.03.02h)
3. Given applicable resources, describe path of flow of the cable disconnect circuit, in accordance with the references. (2146.03.02i)
4. Given applicable resources, describe the path of flow of the fire inhibit circuit, in accordance with the references. (2146.03.02j)

REFERENCE

REFERENCE #

- | | |
|--|------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 3. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 4. M1A1 Tank DS/GS Troubleshooting | TM 08953A-34/5-1 |
| 5. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34/5-2 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D05

HOURS: 3.25

TITLE: M1A1 Hydraulic Systems Functioning

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	3.25	6:1

MEDIA: CPU, HO, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 turret system components, in accordance with the references. (2146.03.02)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify turret hydraulic system components, in accordance with the references. (2146.03.02f)
2. Given applicable resources, describe the path of flow of the M1A1 hydraulic system, in accordance with the references. (2146.03.02r)

REFERENCE

REFERENCE #

- | | |
|--|------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. Tank 120mm M1A1 Volume 1 | TM 08953A-20/2-1 |
| 3. Tank 120mm M1A1 Vol 1 | TM 08953A-20/2-2 |
| 4. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 5. M1A1 Tank DS/GS Troubleshooting | TM 08953A-34/5-1 |
| 6. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34/5-2 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D06

HOURS: 21.00

TITLE: Trouble Shooting M1A1 Turret Systems and Components

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
PA	21.00	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 turret system components, in accordance with the references. (2146.03.02)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, perform standard initial test conditions, in accordance with the references. (2146.03.02k)
2. Given applicable resources, diagnose/isolate turret system malfunctions, in accordance with the references. (2146.03.02m)
3. Given applicable resources, repair M1A1 turret system components, in accordance with the references. (2146.03.02s)
4. Given applicable resources, perform Quality Control (QC) checks on the M1A1 turret system, in accordance with the references. (2146.03.02t)

REFERENCE

REFERENCE #

- | | |
|--|----------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 3. Pace Kit Soldering Manual | PACE |
| 4. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 5. M1A1 Tank DS/GS Troubleshooting | TM 08953A-34/5-1 |
| 6. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34/5-2 |
| 7. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 | TM 9-4931-586-12-1&P |
| 8. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 | TM 9-4931-586-12-2&P |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D07

HOURS: 7.00

TITLE: Repair M1A1 Turret Components

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	6.00	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M1A1 turret electrical system components, in accordance with the references. (2146.03.12)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, utilize DSESTS to diagnose/isolate turret electrical system components, in accordance with the references. (2146.03.12a)
2. Given applicable resources, repair faulty turret electrical system components, in accordance with the references. (2146.03.12b)

REFERENCE

REFERENCE #

- | | |
|--|----------------------|
| 1. Tank 120mm M1A1 Volume 1 | TM 08953A-20/2-1 |
| 2. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34-2-2 |
| 3. Intermediate Direct Support and Intermediate General Support Maintenance Manual Vol. 1 of 3 for M1 and M1A1 Sighting and Fire Control | TM 9-1200-206-34-1 |
| 4. Intermediate Direct Support and Intermediate General Support Maintenance Manual Vol. 2 of 3 for M1 and M1A1 Sighting and Fire Control | TM 9-1200-206-34-2 |
| 5. Intermediate Direct Support and Intermediate General Support Maintenance Manual Vol. 3 of 3 for M1 and M1A1 Sighting and Fire Control | TM 9-1200-206-34-3 |
| 6. Direct Support and General Support Repair Parts and Special Tools List for M1, IPM1, and M1A1 Sighting and Fire Control Components | TM 9-1200-206-34P-2 |
| 7. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 1 of 2 | TM 9-2350-264-34-2-1 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D08

HOURS: 3.50

TITLE: M1A1 External Auxiliary Power Unit (EAPU)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	6:1
PA	3.00	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain external auxiliary power unit (EAPU), in accordance with the references. (2146.03.18)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify External Auxiliary Power Unit (EAPU) components and characteristics, in accordance with the references. (2146.03.18a)
2. Given applicable resources, identify the operation of the External Auxiliary Power Unit (EAPU), in accordance with the references. (2146.03.18b)
3. Given applicable resources, operate the External Auxiliary Power Unit (EAPU), in accordance with the references. (2146.03.18c)
4. Given applicable resources, diagnose/isolate External Auxiliary Power Unit (EAPU) malfunctions, in accordance with the references. (2146.03.18d)
5. Given applicable resources, repair External Auxiliary Power Unit (EAPU) malfunctions, in accordance with the references. (2146.03.18e)

REFERENCE

REFERENCE #

- | | |
|--------------------------------------|----------------------|
| 1. External Auxiliary Power Unit | TM 9-6115-542-24&P/1 |
| 2. Principles of Automotive Vehicles | TM 9-8000 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D09

HOURS: 3.75

TITLE: M1A1 Fire Suppression System

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	3.75	6:1

MEDIA: AIO, CPU, HO, PPP

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M1A1 fire suppression equipment components, in accordance with the references. (2146.03.11)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components of the fire suppression system, in accordance with the references. (2146.03.11a)
2. Given applicable resources, identify the fire suppression system theory of operation, in accordance with the references. (2146.03.11b)
3. Given applicable resources, diagnose/isolate fire suppression system malfunctions, in accordance with the references. (2146.03.11c)
4. Given applicable resources, repair fire suppression system malfunctions, in accordance with the references. (2146.03.11d)

NOTE(S):

The repair of this system will be covered in the fire suppression system for the M88A2.

REFERENCE

REFERENCE #

- | | |
|---|------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. M1A1 Tank DS/GS Troubleshooting | TM 08953A-34/5-1 |
| 3. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34/5-2 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D10

HOURS: 7.00

TITLE: Recoil Mechanism Wiper Seal Replacement

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.50	6:1
PA	6.50	6:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M1A1 armament system components, in accordance with the references. (2146.03.15)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the armament system components, in accordance with the references. (2146.03.15a)
2. Given applicable resources, perform armament system disassembly procedures, in accordance with the references. (2146.03.15b)
3. Given applicable resources, replace armament system seals, in accordance with the references. (2146.03.15c)
4. Given applicable resources, perform armament system assembly procedures, in accordance with the references. (2146.03.15d)
5. Given applicable resources, perform Quality Control (QC) checks on the recoil mechanism seal, in accordance with the references. (2146.03.15e)

REFERENCE

REFERENCE #

- | | |
|--|----------------------|
| 1. Lubrication Instruction, Tank, Combat, Full-Tracke:120-mm Gun, M1A1 | LI 08953A-12 |
| 2. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Turret | TM 08953A-24P-2 |
| 3. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34-2-2 |
| 4. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 1 of 2 | TM 9-2350-264-34-2-1 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D11

HOURS: 0.75

TITLE: Traverse Mechanism and Main Gun Rotor

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.75	6:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M1A1 armament system components, in accordance with the references. (2146.03.15)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify traverse mechanism components, in accordance with the references. (2146.03.15f)
2. Given applicable resources, describe the traverse mechanism theory of operation, in accordance with the references. (2146.03.15g)
3. Given applicable resources, identify main gun rotor components, in accordance with the references. (2146.03.15h)
4. Given applicable resources, describe main gun rotor theory of operation, in accordance with the references. (2146.03.15i)

REFERENCE

REFERENCE #

- | | |
|--|----------------------|
| 1. Lubrication Instruction, Tank, Combat, Full-Tracke:120-mm Gun, M1A1 | LI 08953A-12 |
| 2. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Turret | TM 08953A-24P-2 |
| 3. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34-2-2 |
| 4. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 1 of 2 | TM 9-2350-264-34-2-1 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

LESSON ID: 21460D12

HOURS: 6.25

TITLE: Bore Scoping the M1A1 Main Gun

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	5.25	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M1A1 armament system components, in accordance with the references. (2146.03.15)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify components of the M3 Borescope, in accordance with the references. (2146.03.15j)
2. Given applicable resources, describe the M3 Borescope operation, in accordance with the references. (2146.03.15k)
3. Given applicable resources, operate the M3 Borescope, in accordance with the references. (2146.03.15l)
4. Given applicable resources, evaluate the cannon tube utilizing the M3 Borescope, in accordance with the references. (2146.03.15m)

REFERENCE

REFERENCE #

- | | |
|---|----------------------|
| 1. Lubrication Instruction, Tank, Combat, Full-Track:120-mm Gun, M1A1 | LI 08953A-12 |
| 2. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34-2-2 |
| 3. Evaluation of Cannon Tubes | TM 9-1000-202-14 |
| 4. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 1 of 2 | TM 9-2350-264-34-2-1 |
| 5. M3 Borscope Manual | TM 9-6650-235-13&P |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460D13

HOURS: 7.00

TITLE: JPT and Review (D2-D12)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.25	6:1
X(P)	6.75	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 turret system components, in accordance with the references. (2146.03.02)
2. Given applicable resources, maintain M1A1 turret electrical system components, in accordance with the references. (2146.03.12)
3. Given applicable resources, maintain external auxiliary power unit (EAPU), in accordance with the references. (2146.03.18)
4. Given applicable resources, maintain M1A1 fire suppression equipment components, in accordance with the references. (2146.03.11)
5. Given applicable resources, maintain M1A1 armament system components, in accordance with the references. (2146.03.15)
6. Given applicable resources, maintain M1A1 turret hydraulic system components, in accordance with the references. (2146.03.13)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, remove and replace turret hydraulic system components, in accordance with the references. (2146.03.13a)
2. Given applicable resources, repair turret hydraulic system components, in accordance with the references. (2146.03.13b)

REFERENCE

REFERENCE #

- | | |
|--|------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 3. Lubrication Instruction, Tank, Combat, Full-Tracke:120-mm Gun, M1A1 | LI 08953A-12 |
| 4. Pace Kit Soldering Manual | PACE |
| 5. Tank 120mm M1A1 Volume 1 | TM 08953A-20/2-1 |
| 6. Tank 120mm M1A1 Vol 1 | TM 08953A-20/2-2 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460D13

HOURS: 7.00

TITLE: JPT and Review (D2-D12)

- | | |
|--|----------------------|
| 7. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 8. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Turret | TM 08953A-24P-2 |
| 9. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34-2-2 |
| 10. M1A1 Tank DS/GS Troubleshooting | TM 08953A-34/5-1 |
| 11. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34/5-2 |
| 12. Evaluation of Cannon Tubes | TM 9-1000-202-14 |
| 13. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 1 of 2 | TM 9-2350-264-34-2-1 |
| 14. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 | TM 9-4931-586-12-1&P |
| 15. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 | TM 9-4931-586-12-2&P |
| 16. External Auxiliary Power Unit | TM 9-6115-542-24&P/1 |
| 17. M3 Borscope Manual | TM 9-6650-235-13&P |
| 18. Principles of Automotive Vehicles | TM 9-8000 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460D14

HOURS: 3.25

TITLE: JKT and Review (D2-D13)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	0.10	6:1
X(W)	3.15	6:1

MEDIA: HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 turret system components, in accordance with the references. (2146.03.02)
2. Given applicable resources, maintain M1A1 turret electrical system components, in accordance with the references. (2146.03.12)
3. Given applicable resources, maintain external auxiliary power unit (EAPU), in accordance with the references. (2146.03.18)
4. Given applicable resources, maintain M1A1 fire suppression equipment components, in accordance with the references. (2146.03.11)
5. Given applicable resources, maintain M1A1 armament system components, in accordance with the references. (2146.03.15)
6. Given applicable resources, maintain M1A1 turret hydraulic system components, in accordance with the references. (2146.03.13)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, remove and replace turret hydraulic system components, in accordance with the references. (2146.03.13a)
2. Given applicable resources, repair turret hydraulic system components, in accordance with the references. (2146.03.13b)

REFERENCE

REFERENCE #

- | | |
|--|------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 3. Lubrication Instruction, Tank, Combat, Full-Tracke:120-mm Gun, M1A1 | LI 08953A-12 |
| 4. Pace Kit Soldering Manual | PACE |
| 5. Tank 120mm M1A1 Volume 1 | TM 08953A-20/2-1 |
| 6. Tank 120mm M1A1 Vol 1 | TM 08953A-20/2-2 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX D - M1A1 ABRAMS TANK TURRET SYSTEMS OPERATION AND TROUBLESHOOTING

EXAM ID: 21460D14

HOURS: 3.25

TITLE: JKT and Review (D2-D13)

- | | |
|---|----------------------|
| 7. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 8. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Turret | TM 08953A-24P-2 |
| 9. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34-2-2 |
| 10. M1A1 Tank DS/GS Troubleshooting | TM 08953A-34/5-1 |
| 11. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34/5-2 |
| 12. Evaluation of Cannon Tubes | TM 9-1000-202-14 |
| 13. Intermediate Direct Support and Intermediate General Support Maintenance Manual Vol. 1 of 3 for M1 and M1A1 Sighting and Fire Control | TM 9-1200-206-34-1 |
| 14. Intermediate Direct Support and Intermediate General Support Maintenance Manual Vol. 2 of 3 for M1 and M1A1 Sighting and Fire Control | TM 9-1200-206-34-2 |
| 15. Intermediate Direct Support and Intermediate General Support Maintenance Manual Vol. 3 of 3 for M1 and M1A1 Sighting and Fire Control | TM 9-1200-206-34-3 |
| 16. Direct Support and General Support Repair Parts and Special Tools List for M1, IPM1, and M1A1 Sighting and Fire Control Components | TM 9-1200-206-34P-2 |
| 17. Intermediate Direct Support and Intermediate General Support Maintenance Manual for M1A1 Turret, Vol. 1 of 2 | TM 9-2350-264-34-2-1 |
| 18. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 | TM 9-4931-586-12-1&P |
| 19. Operations, Maintenance, and Parts Manual for Test Set, Direct Support Electrical System Test Set for AN/USM-615 | TM 9-4931-586-12-2&P |
| 20. M3 Borscope Manual | TM 9-6650-235-13&P |
| 21. Principles of Automotive Vehicles | TM 9-8000 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E01

HOURS: 0.25

TITLE: Introduction to Annex E

METHOD HOURS S:I RATIO

L 0.25 6:1

MEDIA: CPU, PPP

LESSON PURPOSE:

This annex provides the student training on the M88A2 Hercules and AVLB. Emphasis is placed on the hydraulics and diesel engine operation. Students are afforded an opportunity to display mastery of hydraulic systems and diesel engine operation.

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E02

HOURS: 0.50

TITLE: M88A2 Hercules Introduction

METHOD HOURS S:I RATIO

L 0.50 6:1

MEDIA: HO

LESSON PURPOSE:

There are no learning objectives making this a lesson purpose class. However, this lesson will assist you in mastering the learning objectives throughout Annex E.

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E03

HOURS: 6.50

TITLE: M88A2 Hydraulic Systems

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	6.50	6:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain M88A2 systems, in accordance with the references. (2146.03.20)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify M88A2 hydraulic system components, in accordance with the references. (2146.03.20a)
2. Given applicable resources, identify the M88A2 hydraulic system theory of operation, in accordance with the references. (2146.03.20b)
3. Given applicable resources, describe M88A2 hydraulic system component operation, in accordance with the references. (2146.03.20h)
4. Given applicable resources, describe M88A2 hydraulic system path of flow, in accordance with the references. (2146.03.20i)
5. Given applicable resources, diagnose/isolate M88A2 hydraulic system malfunctions, in accordance with the references. (2146.03.20j)
6. Given applicable resources, repair M88A2 hydraulic system malfunctions, in accordance with the references. (2146.03.20k)
7. Given applicable resources, perform Quality Control (QC) inspections on the M88A2 hydraulic system, in accordance with the references. (2146.03.20l)

REFERENCE

REFERENCE #

- | | |
|---|---------------------|
| 1. Organizational Maintenance Manual for Recovery Vehicle, Full-Tracked; Medium, M88A2 | TM 9-2350-292-20 |
| 2. Organizational Maintenance Repair Parts and Special Tools List for Recovery Vehicle, Full-Tracked; Medium, M88A2 | TM 9-2350-292-24P-1 |
| 3. Direct Support and General Support Maintenance Manual for Recovery Vehicle, Full-Tracked; Medium, M88A2 | TM 9-2350-292-34-1 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E03

HOURS: 6.50

TITLE: M88A2 Hydraulic Systems

4. Direct Support and General Support Maintenance manual for Recovery Vehicle, Full-Tracked; Medium, M88A2 Winch, Power Take-off and Hoist System

TM 9-2350-292-34-2

5. United Defense Instructor Guide

UNITED DEFENSE

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E04

HOURS: 7.00

TITLE: Troubleshoot M88A2

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
PA	7.00	6:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M88A2, in accordance with the references. (2146.03.19)
2. Given applicable resources, maintain M88A1/M88A2 fuel system, in accordance with the references. (2146.03.25)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify electrical system components, in accordance with the references. (2146.03.19a)
2. Given applicable resources, identify the theory of operation for the M88A2 electrical system, in accordance with the references. (2146.03.19b)
3. Given applicable resources, diagnose/isolate M88A2 electrical system malfunctions, in accordance with the references. (2146.03.19c)
4. Given applicable resources, repair M88A2 electrical system malfunctions, in accordance with the references. (2146.03.19d)
5. Given applicable resources, identify M88A2 fuel system components, in accordance with the references. (2146.03.25a)
6. Given applicable resources, identify M88A2 fuel system component operation, in accordance with the references. (2146.03.25b)
7. Given applicable resources, diagnose/isolate M88A2 fuel system malfunctions, in accordance with the references. (2146.03.25c)
8. Given applicable resources, repair M88A2 fuel system malfunctions, in accordance with the references. (2146.03.25d)

REFERENCE

REFERENCE #

1. Operator's Manual, Recovery Vehicle Medium M88A2

TM 9-2350-292-10

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E04

HOURS: 7.00

TITLE: Troubleshoot M88A2

- | | |
|---|---------------------|
| 2. Organizational Maintenance Manual for Recovery Vehicle, Full-Tracked; Medium, M88A2 | TM 9-2350-292-20 |
| 3. Direct Support and General Support Maintenance Manual for Recovery Vehicle, Full-Tracked; Medium, M88A2 | TM 9-2350-292-34-1 |
| 4. Direct Support and General Support Maintenance manual for Recovery Vehicle, Full-Tracked; Medium, M88A2 Winch, Power Take-off and Hoist System | TM 9-2350-292-34-2 |
| 5. Direct Support and General Support Maintenance Repair Parts and Special Tools List for Recovery Vehicle, Full-Tracked; Medium M88A2 | TM 9-2350-292-34P-1 |
| 6. United Defense Instructor Guide | UNITED DEFENSE |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E05

HOURS: 14.00

TITLE: Repair M88A2/AVLB Engine

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
PA	14.00	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, repair M88A2 engine, in accordance with the references. (2146.03.22)
2. Given applicable resources, maintain AVLB engine, in accordance with the references. (2146.03.26)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the AVDS 1790 engine components, in accordance with the references. (2146.03.22a)
2. Given applicable resources, identify the theory of operation of the AVDS 1790 engine, in accordance with the references. (2146.03.22b)
3. Given applicable resources, identify the cylinder compression tolerances of the AVDS 1790 diesel engine, in accordance with the references. (2146.03.22c)
4. Given applicable resources, make valve adjustments to the AVDS 1790 deisel engine, in accordance with the references. (2146.03.22d)
5. Given applicable resources, make AVDS 1790 fuel injector adjustments, in accordance with the references. (2146.03.22e)
6. Given applicable resources, make AVDS 1790 fuel injector pump adjusments, in accordance with the references. (2146.03.22f)
7. Given applicable resources, make timing adjustments to the AVDS 1790 diesel engine, in accordance with the references. (2146.03.22g)

REFERENCE

REFERENCE #

- | | |
|--|---------------------|
| 1. Direct Support and General Support Maintenance Repair Parts and Special Tools List for Recovery Vehicle, Full-Tracked; Medium M88A2 | TM 9-2350-292-34P-1 |
| 2. Direct Support and General Support Maintenance Manual for Engine w/Container; Turbosupercharged, Diesel, Fuel | TM 9-2815-220-34 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E05

HOURS: 14.00

TITLE: Repair M88A2/AVLB Engine

Injection, 90 Degree "V" Type, Air Cooled 12 Cyl, Assembly;
Mod-D

3. United Defense Instructor Guide

UNITED DEFENSE

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E06

HOURS: 10.25

TITLE: Repair M88A2 Transmission

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
PA	10.25	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, repair M88A1/M88A2 transmission, per the references. (2146.03.23)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components of the M88A2 XT1410 transmission, in accordance with the references. (2146.03.23a)
2. Given applicable resources, identify the theory of operation of the XT1410 transmission, in accordance with the references. (2146.03.23b)
3. Given applicable resources, perform pressure checks on the XT1410 transmission, in accordance with the references. (2146.03.23c)
4. Given applicable resources, disassemble the XT1410 transmission, in accordance with the references. (2146.03.23d)
5. Given applicable resources, inspect the XT1410 transmission, in accordance with the references. (2146.03.23e)
6. Given applicable resources, assemble the XT1410 transmission, in accordance with the references. (2146.03.23f)

REFERENCE

REFERENCE #

- | | |
|---|------------------|
| 1. Direct and General Support and Depot Maintenance for Transmission, Cross Drive Assembly (Allison Model XT 1410-4) | TM 9-2520-215-34 |
| 2. Principles of Automotive Vehicles | TM 9-8000 |
| 3. United Defense Instructor Guide | UNITED DEFENSE |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E07

HOURS: 7.00

TITLE: Maintain AVLB Transmission

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
PA	7.00	6:1

MEDIA: AIO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain AVLB transmission, in accordance with the references. (2146.03.29)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources identify the components of the AVLB CD850 transmission, in accordance with the references. (2146.03.29a)
2. Given applicable resources, identify the theory of operation of the AVLB CD850 transmission, in accordance with the references. (2146.03.29b)
3. Given applicable resources, perform CD850 transmission brake and band adjustments, in accordance with the references. (2146.03.29c)

REFERENCE

REFERENCE #

- | | |
|--|-------------------|
| 1. Lubrication Order, Launcher, M60A1 Tank Chassis, Transporting; For Bridge, Armored-Vehicle-Launched; Scissoring Type, Class 60 | LO 5-5420-202-12 |
| 2. Direct Support and General Support Maintenance M60A1 Tank Chassis Transporting; for Bridge, Armored-Vehicle-Launched, Scissoring Type, Class 60 | TM 5-5420-202-34 |
| 3. Direct Support and General Support Maintenance Repair Parts and Special Tools List for M60A1, AVLB, Armored Vehicle Launcher Bridge | TM 5-5420-202-34P |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E08

HOURS: 3.75

TITLE: Maintain AVLB Launcher Systems

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	2.75	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain AVLB launcher, in accordance with the references. (2146.03.34)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components of the AVLB Lanucher, in accordance with the references. (2146.03.34a)
2. Given applicable resources, identify the theory of operation for the AVLB launcher, in accordance with the references. (2146.03.34b)
3. Given applicable resources, diagnose/isolate AVLB launcher system malfunctions, in accordance with the references. (2146.03.34c)
4. Given applicable resources, repair AVLB launcher system malfunctions, in accordance with the references. (2146.03.34d)

REFERENCE

REFERENCE #

- | | |
|--|-------------------|
| 1. Organizational Maintenance Manual for M60A1, AVLB, Armored Vehicle Launcher Bridge | TM 5-5420-202-20 |
| 2. Organizational Maintenance Repair Parts and Special Tools List for M60A1, AVLB, Armored Vehicle Launcher Bridge | TM 5-5420-202-24P |
| 3. Direct Support and General Support Maintenance M60A1 Tank Chassis Transporting; for Bridge, Armored-Vehicle-Launched, Scissoring Type, Class 60 | TM 5-5420-202-34 |
| 4. Direct Support and General Support Maintenance Repair Parts and Special Tools List for M60A1, AVLB, Armored Vehicle Launcher Bridge | TM 5-5420-202-34P |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E09

HOURS: 3.25

TITLE: Maintain AVLB Electrical System

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	2.25	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain AVLB electrical system, in accordance with the references. (2146.03.28)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the electrical components of the AVLB, in accordance with the references. (2146.03.28a)
2. Given applicable resources, identify the theory of operation of the AVLB electrical system, in accordance with the references. (2146.03.28b)
3. Given applicable resources, diagnose/isolate AVLB electrical system malfunctions, in accordance with the references. (2146.03.28c)
4. Given applicable resources, repair AVLB electrical system malfunctions, in accordance with the references. (2146.03.28d)

REFERENCE

REFERENCE #

- | | |
|--|-------------------|
| 1. Operator's Manual, launcher, M60A1 Tank Chassis, Transporting; for Bridge, Armored-Vehicle-Launched, Scissoring Type, Class 60 | TM 5-5420-202-10 |
| 2. Organizational Maintenance Repair Parts and Special Tools List for M60A1, AVLB, Armored Vehicle Launcher Bridge | TM 5-5420-202-24P |
| 3. Direct Support and General Support Maintenance M60A1 Tank Chassis Transporting; for Bridge, Armored-Vehicle-Launched, Scissoring Type, Class 60 | TM 5-5420-202-34 |
| 4. Direct Support and General Support Maintenance Repair Parts and Special Tools List for M60A1, AVLB, Armored Vehicle Launcher Bridge | TM 5-5420-202-34P |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

LESSON ID: 21460E10

HOURS: 3.75

TITLE: Maintain AVLB Fire Suppression System

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
L	1.00	6:1
PA	2.75	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, maintain AVLB fire suppression system, in accordance with the references. (2146.03.33)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the components of the AVLB fire suppression system, in accordance with the references. (2146.03.33a)
2. Given applicable resources, identify the theory of operation for the AVLB fire suppression system, in accordance with the references. (2146.03.33b)
3. Given applicable resources, diagnose/isolate AVLB fire suppression malfunctions, in accordance with the references. (2146.03.33c)
4. Given applicable resources, repair AVLB fire suppression system malfunctions, in accordance with the references. (2146.03.33d)
5. Given applicable resources, perform Quality Control (QC) inspection of the AVLB fire suppression system, in accordance with the references. (2146.03.33e)

REFERENCE

REFERENCE #

1. Direct Support and General Support Maintenance M60A1 Tank Chassis Transporting; for Bridge, Armored-Vehicle-Launched, Scissoring Type, Class 60 TM 5-5420-202-34

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

EXAM ID: 21460E11

HOURS: 4.00

TITLE: JKT and Review (E02-E17)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
X(W)	4.00	6:1

MEDIA: HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M88A2, in accordance with the references. (2146.03.19)
2. Given applicable resources, maintain M88A2 systems, in accordance with the references. (2146.03.20)
3. Given applicable resources, maintain M88A1/M88A2 fuel system, in accordance with the references. (2146.03.25)
4. Given applicable resources, repair M88A2 engine, in accordance with the references. (2146.03.22)
5. Given applicable resources, maintain AVLB engine, in accordance with the references. (2146.03.26)
6. Given applicable resources, repair M88A1/M88A2 transmission, per the references. (2146.03.23)
7. Given applicable resources, maintain AVLB transmission, in accordance with the references. (2146.03.29)
8. Given applicable resources, maintain AVLB launcher, in accordance with the references. (2146.03.34)
9. Given applicable resources, maintain AVLB electrical system, in accordance with the references. (2146.03.28)
10. Given applicable resources, maintain AVLB fire suppression system, in accordance with the references. (2146.03.33)

ENABLING LEARNING OBJECTIVE(S):

1. Given applicable resources, identify the M88A2 hydraulic system theory of operation, in accordance with the references. (2146.03.20b)

REFERENCE

REFERENCE #

- | | |
|---|------------------|
| 1. Lubrication Order, Launcher, M60A1 Tank Chassis, Transporting; For Bridge, Armored-Vehicle-Launched; Scissoring Type, Class 60 | LO 5-5420-202-12 |
| 2. Operator's Manual, launcher, M60A1 Tank Chassis, Transporting; for Bridge, Armored-Vehicle-Launched, | TM 5-5420-202-10 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

EXAM ID: 21460E11

HOURS: 4.00

TITLE: JKT and Review (E02-E17)

Scissoring Type, Class 60

3. Organizational Maintenance Manual for M60A1, AVLB, Armored Vehicle Launcher Bridge TM 5-5420-202-20
4. Organizational Maintenance Repair Parts and Special Tools List for M60A1, AVLB, Armored Vehicle Launcher Bridge TM 5-5420-202-24P
5. Direct Support and General Support Maintenance M60A1 Tank Chassis Transporting; for Bridge, Armored-Vehicle-Launched, Scissoring Type, Class 60 TM 5-5420-202-34
6. Direct Support and General Support Maintenance Repair Parts and Special Tools List for M60A1, AVLB, Armored Vehicle Launcher Bridge TM 5-5420-202-34P
7. Operator's Manual, Recovery Vehicle Medium M88A2 TM 9-2350-292-10
8. Organizational Maintenance Manual for Recovery Vehicle, Full-Track; Medium, M88A2 TM 9-2350-292-20
9. Organizational Maintenance Repair Parts and Special Tools List for Recovery Vehicle, Full-Track; Medium, M88A2 TM 9-2350-292-24P-1
10. Direct Support and General Support Maintenance Manual for Recovery Vehicle, Full-Track; Medium, M88A2 TM 9-2350-292-34-1
11. Direct Support and General Support Maintenance manual for Recovery Vehicle, Full-Track; Medium, M88A2 Winch, Power Take-off and Hoist System TM 9-2350-292-34-2
12. Direct Support and General Support Maintenance Repair Parts and Special Tools List for Recovery Vehicle, Full-Track; Medium M88A2 TM 9-2350-292-34P-1
13. Direct and General Support and Depot Maintenance for Transmission, Cross Drive Assembly (Allison Model XT 1410-4) TM 9-2520-215-34
14. Direct Support and General Support Maintenance Manual for Engine w/Container; Turbosupercharged, Diesel, Fuel Injection, 90 Degree "V" Type, Air Cooled 12 Cyl, Assembly; Mod-D TM 9-2815-220-34
15. Principles of Automotive Vehicles TM 9-8000
16. United Defense Instructor Guide UNITED DEFENSE

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

EXAM ID: 21460E12

HOURS: 7.00

TITLE: End of Course (EOC) JPT (A1-E17)

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
X(P)	7.00	6:1

MEDIA: AIO, HO

TERMINAL LEARNING OBJECTIVE(S):

1. Given applicable resources, troubleshoot M1A1 hull system components, in accordance with the references. (2146.03.01)
2. Given applicable resources, troubleshoot M1A1 turret system components, in accordance with the references. (2146.03.02)
3. Given applicable resources, maintain M1A1 fuel system components, in accordance with the references. (2146.03.04)
4. Given applicable resources, maintain M1A1 hull electrical system components, in accordance with the references. (2146.03.06)
5. Given applicable resources, repair M1A1 final drive assembly, in accordance with the references. (2146.03.07)
6. Given applicable resources, maintain M1A1 fire suppression equipment components, in accordance with the references. (2146.03.11)
7. Given applicable resources, maintain M1A1 turret electrical system components, in accordance with the references. (2146.03.12)
8. Given applicable resources, maintain M1A1 armament system components, in accordance with the references. (2146.03.15)
9. Given applicable resources, maintain X11003B transmission, in accordance with the references. (2146.03.17)
10. Given applicable resources, maintain external auxiliary power unit (EAPU), in accordance with the references. (2146.03.18)
11. Given applicable resources, troubleshoot M88A2, in accordance with the references. (2146.03.19)
12. Given applicable resources, maintain M88A2 systems, in accordance with the references. (2146.03.20)
13. Given applicable resources, repair M88A2 engine, in accordance with the references. (2146.03.22)
14. Given applicable resources, repair M88A1/M88A2 transmission, per the references. (2146.03.23)
15. Given applicable resources, maintain M88A1/M88A2 fuel system, in accordance with the references. (2146.03.25)

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

EXAM ID: 21460E12

HOURS: 7.00

TITLE: End of Course (EOC) JPT (A1-E17)

16. Given applicable resources, maintain AVLB engine, in accordance with the references. (2146.03.26)
17. Given applicable resources, maintain AVLB electrical system, in accordance with the references. (2146.03.28)
18. Given applicable resources, maintain AVLB transmission, in accordance with the references. (2146.03.29)
19. Given applicable resources, maintain AVLB brake system components, in accordance with the references. (2146.03.30)
20. Given applicable resources, maintain AVLB fire suppression system, in accordance with the references. (2146.03.33)
21. Given applicable resources, maintain AVLB launcher, in accordance with the references. (2146.03.34)
22. Given applicable resources Perform MIMMS/ATLASS II+ systems administration in accordance with the references. (2146.04.04)

REFERENCE

REFERENCE #

- | | |
|---|-------------------|
| 1. General Dynamics Instructor Guide | GD INSTRUCTOR |
| 2. General Dynamics M1A1 Characteristics Book | GD M1A1 CHARACTER |
| 3. Heath Textbook Electronics EB-6101-A / EB-6101-41 | HEATH TEXTBOOK |
| 4. Lubrication Instruction, Tank, Combat, Full-Tracked:120-mm Gun, M1A1 | LI 08953A-12 |
| 5. Lubrication Order, Launcher, M60A1 Tank Chassis, Transporting; For Bridge, Armored-Vehicle-Launched; Scissoring Type, Class 60 | LO 5-5420-202-12 |
| 6. MIMMS Field Procedures Manual | MCO P4790.2_ |
| 7. Military Specification for the DECU | MILSPEC DECU |
| 8. Pace Kit Soldering Manual | PACE |
| 9. Textron Lycoming DECU Book | TEXTRON DECU BOOK |
| 10. Tank 120mm M1A1 Volume 1 | TM 08953A-20/2-1 |
| 11. Tank 120mm M1A1 Vol 1 | TM 08953A-20/2-2 |
| 12. Unit, Intermediate Direct Support and Intermediate General Support Maintenance Manual Systems Schematics for M1A1 | TM 08953A-24-1 |
| 13. Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for M1A1 Hull | TM 08953A-24P-1 |

TANK SYSTEM TECHNICIAN COURSE (M1A1)

SECTION IV - CONCEPT CARDS

ANNEX E - M88A2/AVLB OPERATION AND COMPONENT REPAIR

EXAM ID: 21460E12

HOURS: 7.00

TITLE: End of Course (EOC) JPT (A1-E17)

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|---|----------------------|
| 14. Organizational, Direct Support, and General Support
Maintenance Repair Parts and Special Tools List for M1A1
Turret | TM 08953A-24P-2 |
| 15. Intermediate Direct Support and Intermediate General Support
Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34-2-2 |
| 16. M1A1 Tank DS/GS Troubleshooting | TM 08953A-34/5-1 |
| 17. Intermediate Direct Support and Intermediate General Support
Maintenance Manual for M1A1 Turret, Vol. 2 of 2 | TM 08953A-34/5-2 |
| 18. Intermediate Direct Support and Intermediate General Support
Maintenance Manual for M1A1 Hull, Vol. 1 of 2 | TM 08953A-34/6-1 |
| 19. Intermediate Direct Support and Intermediate General Support
Maintenance Manual for M1A1 Hull, Vol. 2 of 2 | TM 08953A-34/6-2 |
| 20. Ground Equipment Record Procedures | TM 4700-15/1_ |
| 21. Intermediate Direct Support and Intermediate General Support
Maintenance Manual Vol. 1 of 3 for M1 and M1A1 Sighting and
Fire Control | TM 9-1200-206-34-1 |
| 22. Intermediate Direct Support and Intermediate General Support
Maintenance Manual Vol. 2 of 3 for M1 and M1A1 Sighting and
Fire Control | TM 9-1200-206-34-2 |
| 23. Intermediate Direct Support and Intermediate General Support
Maintenance Manual Vol. 3 of 3 for M1 and M1A1 Sighting and
Fire Control | TM 9-1200-206-34-3 |
| 24. Intermediate Direct Support and Intermediate General Support
Maintenance Manual for M1A1 Turret, Vol. 1 of 2 | TM 9-2350-264-34-2-1 |
| 25. Operations, Maintenance, and Parts Manual for Test Set,
Direct Support Electrical System Test Set for AN/USM-615 | TM 9-4931-586-12-1&P |
| 26. Operations, Maintenance, and Parts Manual for Test Set,
Direct Support Electrical System Test Set for AN/USM-615 | TM 9-4931-586-12-2&P |
| 27. Turbine Engine Diagnostic Software 5.1 | TURBINE ENGINE |
| 28. Publication Library Management System | UM-PLMS |

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX Z - ADMINISTRATIVE

EVENT ID: 21460Z01

HOURS: 3.00

EVENT: In Processing

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
ADMIN	3.00	6:1

MEDIA:

NOTE(S):

During this time period the Marine will fill out all necessary paperwork, receive an academic in brief from the academic coordinator and receive command welcome aboard briefs from the CO and the 1stSgt.

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX Z - ADMINISTRATIVE

EVENT ID: 21460Z02

HOURS: 3.00

EVENT: Out Processing/Graduation

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
ADMIN	3.00	6:1

MEDIA:

NOTE(S):

During this time student will have graduation rehearsal, graduation ceremony and receive their endorsements from the administration section.

TANK SYSTEM TECHNICIAN COURSE (MLA1)

SECTION IV - CONCEPT CARDS

ANNEX Z - ADMINISTRATIVE

EVENT ID: 21460Z03

HOURS: 43.00

EVENT: Commanders Time

<u>METHOD</u>	<u>HOURS</u>	<u>S:I RATIO</u>
CMDR	43.00	6:1

MEDIA:

NOTE(S):

There are 45 sessions where commanders time will be implemented in the schedule for a total of 45 non-academic hours. During this time the Marines will conduct PT and have uniform inspections.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION V - STUDENT PERFORMANCE EVALUATION

1. SCOPE. There are two measurement methods used at the M1A1 Tank Technican Course. Individual lessons are evaluated by either performance evaluation calling for the student to duplicate the job performance rquirements 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 learning objectives presented during all periods of instruction. Evaluations are used to determine mastery of the learning objectives, and not rank order the students.

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 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.

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.

d. A complete listing of all exams given can be found in section IV.

TANK SYSTEM TECHNICIAN COURSE (M1A1) PROGRAM OF INSTRUCTION

SECTION VI - DISTRIBUTION LIST

<u>DISTRIBUTION</u>	<u>QUANTITY</u>
COMMARFORRES	1
COMMARFORLANT	1
COMMARFORPAC	1
Marine Corps Institute (MCI)	1