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Subj: ENGINEER AND UTILITIES TRAINING AND READINESS MANUAL

Encl: (1) Chapter 18 modification

1. Purpose. To transmit new chapter replacements to the basic manual.
2. Scope. Chapter 18 has been updated with specified Military Occupational Specialty 1345 1000 and 2000-level tasks.
3. Information. This change is the result of an out of cycle Training and Readiness Manual review by the occupational field advocate and reflects substantive changes to 1000 and 2000-level events taught at the Formal School. The increased specificity of the requisite skills will ensure greater uniformity in training and certification across the operating forces and within the Formal School.
4. Filing Instructions. This change transmittal will be filed immediately following the signature page of the basic manual.


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By direction

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ENG & UTIL T&R MANUAL

CHAPTER 18

MOS 1345 INDIVIDUAL EVENTS

	<u>PARAGRAPH</u>	<u>PAGE</u>
PURPOSE.	18000	18-2
EVENT CODING	18001	18-2
INDEX OF INDIVIDUAL EVENTS	18002	18-2
1000-LEVEL EVENTS.	18003	18-3
2000-LEVEL EVENTS.	18004	18-5

ENG & UTIL T&R MANUAL

CHAPTER 18

MOS 1345 INDIVIDUAL EVENTS

18000. PURPOSE. This chapter details the individual events that pertain to Engineer Equipment Operator. Each individual event provides an event title, along with the conditions events will be performed under, and the standard to which the event must be performed to be successful.

18001. EVENT CODING. Events in this T&R Manual are depicted with an up to 12-character, 3-field alphanumeric system, i.e. XXXX-XXXX-XXXX. This chapter utilizes the following methodology:

a. Field one. This field represents the community. This chapter contains the following community codes:

<u>Code</u>	<u>Description</u>
1345	Engineer Equipment Operator

b. Field two. This field represents the functional/duty area. This chapter contains the following functional/duty areas:

<u>Code</u>	<u>Description</u>
ADMN	Administration
HEOP	Heavy Equipment Operations
HORZ	Horizontal Construction

c. Field three. This field provides the level at which the event is accomplished and numerical sequencing of events. This chapter contains the following event levels:

<u>Code</u>	<u>Description</u>
1000	Core Skills
2000	Core Plus Skills

18002. INDEX OF INDIVIDUAL EVENTS

EVENT CODE	EVENT	PAGE
1000-LEVEL EVENTS		
1345-ADMN-1001	Conduct engineer equipment shop operations	18-3
1345-HEOP-1001	Operate Material Handling Equipment (MHE)	18-3
1345-HEOP-1002	Operate Construction Equipment (CE)	18-4
2000-LEVEL EVENTS		
1345-ADMN-2001	Manage engineer equipment shop operations	18-5
1345-ADMN-2002	Maintain engineer equipment operator records and forms	18-6
1345-ADMN-2003	Administer engineer equipment licensing program	18-6
1345-HEOP-2001	Operate Material Handling Equipment (MHE)	18-7
1345-HEOP-2002	Operate Construction Equipment (CE)	18-8
1345-HEOP-2003	Operate the 621G Scraper	18-9

1345-HEOP-2004	Operate equipment with a Grade Control System	18-9
1345-HEOP-2005	Operate the Runway Sweeper	18-10
1345-HEOP-2006	Camouflage positions, vehicles or equipment	18-11
1345-HORZ-2001	Prepare estimations for project production and logistical requirements	18-11

18003. 1000-LEVEL EVENTS

1345-ADMN-1001: Conduct engineer equipment shop operations

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, personnel, Automated Information System (AIS), tools, facilities, forms, and references.

STANDARD: To maintain unit readiness without injury to personnel or damage to equipment.

PERFORMANCE STEPS:

1. Identify engineer equipment.
2. Initiate records and forms.
3. Select the appropriate Technical Manuals.
4. Select the appropriate Lubrication orders.
5. Select petroleum, oils, and lubricants.
6. Perform inventory of tool sets.
7. Perform PMCS, as required.
8. Complete records and forms.

REFERENCES:

1. MCO P4790.2_ MIMMS Field Procedures Manual
2. SL-3-11825A Tool Kit, Vehicular, Special Purpose (Basic Operators Bag-BOB)
3. TM 09062C-OR/1 Tractor, Full Tracked, With Angle Blade (D6K) and Winch, Lubrication Instruction and Components List
4. TM 09135E-OR/1 Light Capability Rough Terrain Forklift (LCRTF) RT-022
5. TM 10794B-OR/A Forklift, Extendable Boom (EBFL) (MODEL: MMV [TIER 2])
6. TM 10996A-OR/A Backhoe Loader Caterpillar Model 420E IT
7. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
8. TM 11412A-OR Operator's Manual 624KR Loader
9. TM 11503A-OR 850 JR Crawler Dozer
10. TM 11621A-OR Motorized Road Grader, Model 120M
11. TM 4700-15/1_ Ground Equipment Record Procedures
12. UM 4000-125 GCSS-MC User's Manual

1345-HEOP-1001: Operate Material Handling Equipment (MHE)

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, SL-3 components, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Initiate operational records.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Conduct lifting of materials.
5. Operate attachments, as required.
6. Change attachments, as required.
7. Load equipment onto the appropriate trailer, as required.
8. Offload equipment from the appropriate trailer, as required.
9. Load equipment onto aircraft, as required.
10. Offload equipment onto aircraft, as required.
11. Perform during operations checks and services.
12. Perform shut down procedures.
13. Perform after operations checks and services.
14. Perform PMCS, as required.
15. Complete operational records.

REFERENCES:

1. FM 21-60 Visual Signals
2. MCO 11262.2B Standard Policy for Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
3. TM 09135E-OR/1 Light Capability Rough Terrain Forklift (LCRTF) RT-022
4. TM 10794B-OR/A Forklift, Extendable Boom (EBFL) (MODEL: MMV [TIER 2])
5. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
6. TM 11412A-OR Operator's Manual 624KR Loader
7. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-1002: Operate Construction Equipment (CE)

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, SL-3 components, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Initiate operational records.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Operate earthmoving equipment.
5. Operate attachments, as required.
6. Change attachments, as required.
7. Load equipment onto the appropriate trailer, as required.
8. Offload equipment from the appropriate trailer, as required.
9. Perform during operations checks and services.
10. Perform shut down procedures.
11. Perform after operations checks and services.
12. Perform PMCS, as required.
13. Complete operational records.

REFERENCES:

1. FM 21-60 Visual Signals
 2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
 3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
 4. MCRP 3-17.7I Earthmoving Operations
 5. TM 09062C-OR/1 Tractor, Full Tracked, With Angle Blade (D6K) and Winch, Lubrication Instruction and Components List
 6. TM 10996A-OR/A Backhoe Loader Caterpillar Model 420E IT
 7. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
 8. TM 11503A-OR 850 JR Crawler Dozer
 9. TM 11621A-OR Motorized Road Grader, Model 120M
 10. TM 4700-15/1_ Ground Equipment Record Procedures
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18004. 2000-LEVEL EVENTS

1345-ADMN-2001: Manage engineer equipment shop operations

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided engineer equipment, personnel, Automated Information System (AIS), SL-3 components, tools, facilities, forms, and references.

STANDARD: In order to maintain engineer equipment readiness and availability.

PERFORMANCE STEPS:

1. Identify maintenance functional areas.
2. Determine discrepancies within functional areas.
3. Identify required AIS actions.
4. Initiate a Service Request for required program, as required.
5. Document AIS actions, as required.
6. Complete Service Request for required program, as required.

7. Review the Maintenance Production Report (MPR).
8. Verify records and forms, as required.

REFERENCES:

1. MCO 4400.160 Field Supply and Maintenance Analysis Office (FSMAO) Program
2. MCO 4790.25 Ground Equipment Maintenance Program (GEMP)
3. MCO P4790.2_ MIMMS Field Procedures Manual
4. MMSOP Maintenance Management Standard Operating Procedures
5. TCPT V.2.0.5 TCPT V.2.0.5 User Manual
6. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
7. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
8. TM 4700-15/1_ Ground Equipment Record Procedures
9. UM 4000-125 GCSS-MC User's Manual

1345-ADMN-2002: Maintain engineer equipment operator records and forms

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided engineer equipment, applicable forms, and references.

STANDARD: In order to maintain engineer equipment readiness and availability.

PERFORMANCE STEPS:

1. Review the references.
2. Determine records/forms required.
3. Prepare the proper records/forms.
4. Maintain records/forms on file, as required.
5. Submit records/forms, as required.

REFERENCES:

1. MCO 11262.2B Standard Policy for Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
2. MCO 4400.160 Field Supply and Maintenance Analysis Office (FSMAO) Program
3. MCO 4790.25 Ground Equipment Maintenance Program (GEMP)
4. MCO P4790.2_ MIMMS Field Procedures Manual
5. TCPT V.2.0.5 TCPT V.2.0.5 User Manual
6. TM 4700-15/1_ Ground Equipment Record Procedures
7. UM 4000-125 GCSS-MC User's Manual

1345-ADMN-2003: Administer engineer equipment licensing program

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

BILLETS: Licensing Examiner

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: With personnel, documentation, licensing records, and references.

STANDARD: To ensure licensing requirements are met IAW TM 11275-15/4.

PERFORMANCE STEPS:

1. Review the references.
2. Determine operator licensing requirements.
3. Validate equipment training.
4. Review and approve/reject licensing applications and renewals.
5. Administer licensing tests.
6. Review completed OF 346.
7. Document licensing action.

REFERENCES:

1. MMSOP Maintenance Management Standard Operating Procedures
 2. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
 3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
 4. TM 4700-15/1_ Ground Equipment Record Procedures
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1345-HEOP-2001: Operate Material Handling Equipment (MHE)

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, SL-3 components, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Initiate operational records.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Conduct lifting of materials.
5. Operate attachments, as required.
6. Change attachments, as required.
7. Prepare for transportation, as required.
8. Perform during operations checks and services.
9. Perform shut down procedures.
10. Perform after operations checks and services.
11. Perform PMCS, as required.
12. Complete operational records.

REFERENCES:

1. FM 21-60 Visual Signals
 2. MCO 11262.2B Standard Policy for Inspection, Testing, and Certification of Tactical Ground Load Lifting Equipment
 3. TM 09166B-OR Air Mobile Crane (AMC) Rough Terrain, Hydraulic, Light (Model: LRT 110)
 4. TM 11078A-OR Rough Terrain Container Handler (RTCH) RT 240 V2; 53,000LB Capacity; 4X4
 5. TM 11262A-OR/3 Operations and Operator/Crew Maintenance Manual for all-terrain crane
 6. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
 7. TM 4700-15/1_ Ground Equipment Record Procedures
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1345-HEOP-2002: Operate Construction Equipment (CE)

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an engineer equipment requirement, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Initiate operational records.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Operate earthmoving equipment.
5. Operate attachments, as required.
6. Change attachments, as required.
7. Perform during operations checks and services.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Perform PMCS, as required.
11. Complete operational records.

REFERENCES:

1. FM 21-60 Visual Signals
2. MCRP 3-17.7A Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Road Design
3. MCRP 3-17.7B Planning and Design of Roads, Airfields, and Heliports in the Theater of Operations - Airfield and Heliport Design
4. TM 10494B-OR/1 Vibratory Compactor
5. TM 11234A1/11234B-OI/1 T-120 Skid Mounted Hydro Seeder
6. TM 112421A/11241B-OI/1 T-90 Trailer Mounted Hydro Seeder
7. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
8. TM 11276A-OI/1 Multi-Terrain Loader (MTL)
9. TM 11840A-OR Operator's Manual for M9 Armored Combat Earthmover (ACE)
10. TM 12141A-OR/1 Operators manual 250 GR

11. TM 4700-15/1_ Ground Equipment Record Procedures
 12. TM 5-3800-205-10-2 Distributor, Water, Tank Type, 2525 Gallon Capacity, Sectionalized Model 613CWD
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1345-HEOP-2003: Operate the 621G Scraper

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement, supporting equipment, engineer equipment records and forms, and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Initiate operational records.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform self-loading operations.
5. Perform external loading procedures.
6. Perform push loading operations.
7. Perform during operations checks and services.
8. Perform shut down procedures.
9. Perform after operations checks and services.
10. Perform PMCS, as required.
11. Complete operational records.

REFERENCES:

1. TM 08900B-OR/1 Tractor-Scraper, Wheeled Model 621G
2. TM 10996A-OR/A Backhoe Loader Caterpillar Model 420E IT
3. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
4. TM 11412A-OR Operator's Manual 624KR Loader
5. TM 11503A-OR 850 JR Crawler Dozer
6. TM 12141A-OR/1 Operators manual 250 GR
7. TM 4700-15/1_ Ground Equipment Record Procedures

SUPPORT REQUIREMENTS:

EQUIPMENT: 850JR MCT Crawler Dozer, 624KR Loader, Hydraulic Excavator, Backhoe Loader Caterpillar Model 420E IT

1345-HEOP-2004: Operate equipment with a Grade Control System

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided an engineer equipment requirement and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Review the references.
2. Install the laser system.
3. Install the GPS system.
4. Perform the measure up of the GPS system.
5. Perform valve calibration.
6. Perform sensor calibration.
7. Perform site set up of laser system.
8. Perform site set up of GPS system.
9. Perform leveling operations.

REFERENCES:

1. TM 11503A-OR 850 JR Crawler Dozer
 2. TM 11621A-OR Motorized Road Grader, Model 120M
 3. TM 11907B-OR/1 Operation and Maintenance Manual for Grade Control System (GCS)
 4. TM 4700-15/1_ Ground Equipment Record Procedures
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1345-HEOP-2005: Operate the Runway Sweeper

EVALUATION-CODED: NO

SUSTAINMENT INTERVAL: 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided an engineer equipment requirement, engineer equipment records, forms and references.

STANDARD: To safely meet operational requirements with no injury to personnel or damage to the equipment.

PERFORMANCE STEPS:

1. Initiate operational records.
2. Perform before operations checks and services.
3. Perform starting procedures.
4. Perform during operations checks and services.
5. Operate the sweeper to remove foreign object debris (FOD).
6. Perform shut down procedures.
7. Perform after operations checks and services.
8. Perform PMCS, as required.
9. Complete operational records.

REFERENCES:

1. FM 21-60 Visual Signals
2. TM 11275-15/4 Tactical Engineer Equipment Licensing Manual
3. TM 11941A-OR Operator's Manual for Sweeper, Rotary, Vehicle Mounting, Model Crosswind J
4. TM 4700-15/1_ Ground Equipment Record Procedures

1345-HEOP-2006: Camouflage positions, vehicles or equipment

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: PVT, PFC, LCPL, CPL, SGT, SSGT

INITIAL TRAINING SETTING: MOJT

CONDITION: Provided a mission, an area, and lightweight camouflage screening system components.

STANDARD: To prevent detection from 200 meters in any direction.

PERFORMANCE STEPS:

1. Review size of positions, vehicles, or equipment to be camouflaged.
2. Determine required modules of lightweight screen needed.
3. Assemble modules into one net.
4. Place assembled modules over position, vehicles, or equipment to be camouflaged.
5. Ensure appropriate blend is showing.
6. Tie into existing, natural or other manmade camouflage.
7. Inspect area frequently and upgrade camouflage, as needed.

REFERENCES:

1. FM 5-20 Camouflage
2. MCRP 3-17.6A Camouflage, Concealment, and Decoys

1345-HORZ-2001: Prepare estimations for project production and logistical requirements

EVALUATION-CODED: NO **SUSTAINMENT INTERVAL:** 12 months

MOS PERFORMING: 1345

GRADES: CPL, SGT, SSGT

INITIAL TRAINING SETTING: FORMAL

CONDITION: Provided a horizontal construction mission, resources, and references.

STANDARD: To support mission requirements.

PERFORMANCE STEPS:

1. Identify weight of a specified volume of soil.

2. Calculate the maximum load volume and weight.
3. Calculate required production rates.
4. Calculate the time requirement for mission completion.
5. Identify logistical requirements to support a mission.

REFERENCES :

1. MCRP 3-17.7I Earthmoving Operations
 2. MCRP 3-17A Engineer Field Data
 3. MCWP 4-11.6 Petroleum and Water Logistics Operations
 4. TM 08900B-OR/1 Tractor-Scraper, Wheeled Model 621G
 5. TM 10632A-OR/A Truck, Dump, 7-ton, MK29/MK30
 6. TM 11275-15/3_ Principal Technical Characteristics of U.S. Marine Corps Engineer Equipment
 7. TM 11412A-OR Operator's Manual 624KR Loader
 8. TM 11621A-OR Motorized Road Grader, Model 120M
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