

551-88U-2400
Inspect Maintenance of Cooling System Components
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

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

Conditions: Assigned as a Railway Specialist with the requirement to check maintenance of cooling system components in an operational environment, given a completed risk assessment, a locomotive, flashlight, tool kit, gauges, inspection checklist, and references, day or night, in all weather conditions. Some iterations of this task should be performed in MOPP 4.

Standards: Check cooling system components, ensuring the identification of problem areas, isolation of cause(s), cleanliness of components, maximum operating safety, and minimization of hazards without causing injury to personnel or damage to equipment.

Special Conditions: None

Safety Risk: Low

MOPP 4: Sometimes

Task Statements

Cue: Your ERC team has been tasked to advise COCOM/Host Nation personnel on how to check maintenance of cooling system components.

DANGER
None

WARNING
None

CAUTION
Working around live tracks is always dangerous. Follow all safety procedures outlined in the GCOR and ATP 4-14.

Remarks: None

Notes: None

Performance Steps

1. Check causes of high water temperature.
 - a. Check the water level.
 - b. Check the water pressure.
 - c. Check water flow.
2. Check causes of low water pressure.
 - a. Stop the engine.
 - b. Check all pipe flanges.
 - c. Check water cooler and radiator.
3. Check causes of water loss.
 - a. Check for leakage at pump seals.
 - b. Check for leakage at cylinder head outlet elbow.
 - c. Check for liner or cylinder head cracks.
4. Report troubleshooting results to supervisor.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the Soldier GO if all performance steps are passed (P). Score the Soldier NO-GO if any performance step is failed (F). If the Soldier fails any step, show what was done wrong and how to do it correctly.

Evaluation Preparation: Ensure that all materials required to perform the task are available. Tell the Soldier that he/she will be evaluated on how to check maintenance of cooling system components.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Checked causes of high water temperature.			
2. Checked causes of low water pressure.			
3. Checked causes of water loss.			
4. Reported troubleshooting results to supervisor.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	ATP 4-14	EXPEDITIONARY RAILWAY CENTER OPERATIONS http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/atp4_14.pdf	Yes	No
	EMD MAINTENANCE INSTRUCT.	EMD Maintenance Instructions	Yes	Yes
	GCOR	General Code of Operating Rules (GCOR), Seventh Edition	Yes	No
	TM 55-2210-224-24P	UNIT, INTERMEDIATE DIRECT SUPPORT AND GENERAL SUPPORT REPAIR PARTS AND SPECIAL TOOLS LIST FOR LOCOMOTIVE, DIESEL-ELECTRIC, 56-1/2-INCH GAGE, 80-TON, 670 HP, 0-4-4-0 WHEEL, MODEL B-B-160/160-4GE747-A1 (NSN	Yes	No

TADSS : None

Equipment Items (LIN):

LIN	Name
NA1520	Case, Ear Plug
DA3045	Boots, Safety
HA4052	Safety Glasses, Revision Sawfly E
DA159T	Vest Safety RV-1
L80632	LOCOMOTIVE DIESEL E
J68064	GLOVES LTHR MN WORK 1

Materiel Items (NSN) :

Step ID	NSN	LIN	Title	Qty
No materiel items specified				

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card.

AR 200-1 delineates TRADOC responsibilities to integrate environmental requirements across DOTMLPF and ensures all training procedures, training manuals, and training doctrine includes sound environmental practices and considerations. The Army's environmental vision is to be a national leader in environmental and natural resource stewardship for present and future generations as an integral part of all Army missions. Environmental protection is never completed. Continuously be alert to ways to protect our environment and reduce waste.

Leaders must ensure that their unit has an active and strong environmental program. They must understand the laws and know what actions to take. Leaders bring focus, direction, and commitment to environmental protection. Commanding officers should ensure the following environmental programs are in place and are being maintained:

- Hazardous materials program.
- Hazardous waste program.
- Hazardous communications program.
- Pollution prevention and hazardous waste minimization recycling program.
- Spill prevention and response plan program.

Safety: In a training environment, leaders must perform a risk assessment in accordance with current Risk Management Doctrine. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW current CBRN doctrine.

All operations will be performed to protect and preserve Army personnel and property against accidental loss. Procedures will provide for public safety incidental to Army operations and activities and safe and healthful workplaces, procedures, and equipment. Observe all safety and/or environment precautions regarding electricity, cable, and lines. Provide ventilation for exhaust fumes during equipment operation and use hearing protection when required IAW AR 385-10, the Clean Air Act (CAA) and the CAA amendments, and the OSHA Hazard Communication standard.

Accidents are an unacceptable impediment to Army missions, readiness, morale, and resources. Decision makers at every level will employ risk management approaches to effectively preclude unacceptable risk to the safety of personnel and property affiliated with this task.(a) Take personal responsibility.(b) Practice safe operations.(c) Recognize unsafe acts and conditions.(d) Take action to prevent accidents.(e) Report unsafe acts and conditions.(f) Work as a team.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
551-88U-2325	Check Maintenance of Engine Protective System	551 - Transportation (Individual)	Approved

Supported Individual Tasks : None

Supported Collective Tasks : None

Knowledges :

Knowledge ID	Knowledge Name
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91L-K-195	Knowledge of the cooling system safe work practices and procedures
K-551-P-0073	Knowledge of locomotive cooling system components and function
91L-K-191	Knowledge of the procedures for removingreplacing cooling system components from the engine
K-551-P-0224	Knowledge of cooling system fundamentals
091-K-00012	Diesel Cooling Systems
91L-K-189	Knowledge of the procedures for testing cooling system components for wear and clearances
91L-K-0042	Know how Diesel Cooling System Operates

Skills :

Skill ID	Skill Name
S-551-P-0079	Ability to inspect cooling system
91L-S-140	Identifying cooling system faulty component(s)

ICTL Data : None