

551-88U-2415
Inspect Maintenance of Diesel Engine 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 given the requirement to advise COCOM/Host Nation personnel on how to inspect the maintenance of diesel engine components, given PPE, a complete risk assessment, all applicable publications, forms, records, tools, materials, personnel, and equipment, day or night, in all weather conditions, and in an operational environment. Some iterations of this task should be performed in MOPP 4.

Standards: Inspect maintenance of diesel engine components without causing injury to personnel or damage to equipment.

Special Conditions: None

Safety Risk: Low

MOPP 4: Sometimes

Task Statements

Cue: You are tasked with advising COCOM/Host Nation personnel on how to inspect the maintenance of diesel engine 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: Observe personnel to ensure the following inspection steps are performed.

Notes: None

Performance Steps

1. Check maintenance of components that could cause the engine failure to start.
 - a. Fuel supply
 - b. Exhaust valves
 - c. Injector timing
 - d. Overspeed trip
 - e. Engine protector reset buttons
2. Check maintenance of components that could cause engine shutdown.
 - a. Injector leakage
 - b. Injector rack
3. Check maintenance of components that could cause excessive vibration.
 - a. Cylinders
 - b. Main bearings
 - c. Connecting rod caps
 - d. Camshaft counterweight timing
 - e. Generator alignment
4. Check maintenance of components that could cause loss of power.
 - a. Injectors
 - b. Fuel pump
 - c. Fuel oil pressure
 - d. Scavenging air intake ports
 - e. Exhaust valves
 - f. Obstructions in the exhaust system
5. Check maintenance of components that could cause engine to knock.
 - a. Exhaust valve lash adjustment
 - b. Injectors
 - c. Injector timing
 - d. Engine
6. Check maintenance of components that could cause smoking exhaust.
 - a. Engine overload

- b. Injector timing
 - c. Piston rings
 - d. Air intake filters
 - e. Exhaust
7. Check maintenance of components that could cause engine overspeed.
- a. Overspeed trip
 - b. Governor oil
 - c. Injector racks
 - d. Injector rack setting
8. Check maintenance of components that could cause engine to not come up to speed.
- a. Fuel supply
 - b. Injector rack setting

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Mark each performance measure either GO or NO-GO. The Soldier must complete all steps to receive a GO for each measure. All measures must be marked GO to receive an overall GO on the task. If the Soldier fails any performance measure, 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 checking maintenance of diesel engine components.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Checked maintenance of components that could cause engine failure to start.			
2. Checked maintenance of components that could cause engine shutdown.			
3. Checked maintenance of components that could cause excessive vibration.			
4. Checked maintenance of components that could cause loss of power.			
5. Checked maintenance of components that could cause engine to knock.			
6. Checked maintenance of components that could cause smoking exhaust.			
7. Checked maintenance of components that could cause engine overspeed.			
8. Checked maintenance of components that could cause engine to not come up to speed.			

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 645E	EMD 645E Maintenance Instructions	Yes	No
	EMD MAINTENANCE INSTRUCT.	EMD Maintenance Instructions	Yes	Yes
	GCOR	General Code of Operating Rules (GCOR), Seventh Edition	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
J68064	GLOVES LTHR MN WORK 1

Materiel Items (NSN) :

Step ID	NSN	LIN	Title	Qty
	2210-00-262-0751	L80769	Locomotive H12-44	1

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 : None

Supported Individual Tasks : None

Supported Collective Tasks : None

Knowledges :

Knowledge ID	Knowledge Name
K-551-P-0023	Knowledge of diesel engine inspection procedures
K-551-P-0178	Knowledge of diesel engine components and function
K-551-P-0209	Knowledge of locomotive and diesel engine parts nomenclature

Skills :

Skill ID	Skill Name
S-551-P-0028	Ability to inspect a diesel engine

ICTL Data : None