

Summary Report for Individual Task
551-88U-3340
Analyze Motive Power Required for a Given Train
Status: Approved

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

Destruction Notice: None

Foreign Disclosure: FD6 - This product/publication has been reviewed by the product developers in coordination with the Fort Lee, VA foreign disclosure authority. This product is releasable to students from foreign countries on a case-by-case basis.

Condition: Assigned as a Railway Specialist advising COCOM/HN Personnel on motive power required for a given train, given an Operations Order/Operations Plan, Personal Protective Equipment, completed risk assessment, General Orders, System Special Instructions (SSI), track bulletins, track chart, timetable, day or night, in all weather conditions, in an operational environment scenario. Some iterations of this task should be performed in MOPP 4.

Standard: Confirm motive power requirements in accordance with applicable timetable, train chart and MTO1.

Special Condition: None

Safety Risk: Low

MOPP 4: Sometimes

Task Statements

Cue: Your team has been assigned to assess a rail company. You have been tasked with analyzing the motive power required for a given train.

DANGER

Working around live tracks is always dangerous. Follow all safety procedures outlined in the GCOR. Install portable derail or flag protection IAW GCOR.

WARNING

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CAUTION

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Remarks: None

Notes: None

Performance Steps

1. Validate motive power was calculated according to references.

a. Establish tractive effort.

(1) Determine tractive effort.

(2) Use adhesion factor to determine stuttering tractive effort (STE).

(3) Determine the continuous tractive effort (CTE).

b. Establish drawbar pull (DBP).

Note: Determine limits of DBP after maximum has been calculated.

c. Establish rolling resistance (RR).

(1) Determine that the average RR value is 5 when track conditions are exceptionally good.

(2) Determine that the average RR value is 6 when track conditions are good to fair.

(3) Determine that the average RR value is 7 when track conditions are fair to poor.

(4) Determine that the average RR value is 8 when track conditions in general are poor.

(5) Determine that the average RR value is 9 to 10 when track conditions are very poor.

d. Establish grade resistance (GR).

Note: Use the factor for military railway planning when calculating for use by military rail usage.

e. Establish curve resistance (CR).

Note: Use a factor of 0.8 pounds per degree of curve.

f. Establish effects of weather on motive power capability.

(1) Determine effect of cold on motive power.

(2) Determine effect of wet weather on motive power.

g. Establish the gross trailing load (GTL).

Note: Determine motive power by combining resistance, DBP, and weather factor when locomotive or combination of locomotives is used.

h. Establish the net train load (NTL).

Note: Divide the GTL amount by 2.

2. Confirm motive power was established for foreign or captured locomotives.

a. Determine type of locomotive.

b. Determine capacity when road test or short haul is possible.

c. Use results of road test.

3. Confirm required motive power was requested.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If any performance measure is failed, tell the Soldier what was done wrong and how to do it correctly.

Evaluation Preparation: Setup: provide the Soldier

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Validated motive power was calculated according to references.			
2. Confirmed motive power was established for foreign or captured locomotives.			
3. Confirmed required motive power was requested.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	MTO1	Management of Train Operation and Train Handling	Yes	No

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 FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

It is the responsibility of all Soldiers and DA civilians to protect the environment from damage. AR 200-1 delineates TRADOC responsibilities to integrate environmental requirements across Doctrine, Organization, Training, Material, Leadership and Education, Personnel and Facilities (DOTMLPF) and ensure all training procedures; materials and doctrine include 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. This Training Support Package meets this standard.

Safety: In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET 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 FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

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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 :

Task Number	Title	Proponent	Status
55-6-0003	Perform Rail Planning	55 - Transportation (Collective)	Approved
55-6-0002	Perform Railway Motive Power and Rolling Stock Capability Assessment	55 - Transportation (Collective)	Approved
55-6-0007	Provide Rail Network Capability and Infrastructure Assessments	55 - Transportation (Collective)	Approved
55-6-0006	Advise on employment of theater rail capabilities	55 - Transportation (Collective)	Approved
55-6-0004	Coordinate Use of Host Nation or Contracted Rail Assets	55 - Transportation (Collective)	Approved