THEATER RAIL RESPONSIBILITIES

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Motivator

MOTIVATOR

In 218 B.C., Hannibal led an army of thousands across the Alps after crossing the Rhone River on specially built rafts that carried the elephants and horses.

This is considered one of the most classic strategic maneuvers in military history. It stands as a testimony to the importance of transportation capabilities.

The U.S. Army from its inception has faced similar transportation challenges.

From General George Washington's needs in 1775 to move the colonial army, to today's commanders needs to move troops and materials, transportation has become a significant logistic factor.

The rail transportation system is an integral part of the deployment process, serving as a primary mode of transportation for moving deploying unit equipment to the sea ports of embarkation.

Rail is the preferred method for moving all tracked military vehicles and even wheeled vehicles, if the driving distance from the installation to the port is too great.

One of the most classic strategic maneuvers in military history was accomplished by Hannibal when he ferried his army with elephants across the Rhone River and then across the Alps.

The United States Army from its inception has faced similar transportation and logistics challenges from General George Washington and the colonial army to today's commanders who need to move large numbers of troops and materials.

As General Omar Bradley stated, *"Rail is often the preferred mode of transport because it is less expensive and faster than other means for moving large forces."*

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Army Rail The Beginning

The history of rail operations and the U.S. Army began in 1829 when construction on the Baltimore & Ohio Railroad and Canal began.

It was at this time that the U.S. Government, via the Army, worked with the civil sector to build a national railroad system.

The first war time use of the railroads occurred in 1846 when troops were mobilized during the Mexican War.

The next major use of the railway system happened during the Civil War were rail use contributed to the most important strategic victory of the war with the capture of Vicksburg.

Then during the Spanish-American War of 1898, rail was again used, however, the system was severely taxed which pointed out the necessity for the military to manage the railroads in time of war.

Army rail operations began in 1829 when the Army, worked with the civil sector to build a national railroad system.

In 1846, the Army used rail to move troops during the Mexican War.

Rail was used extensively during the Civil War and contributed to the most important strategic victory of the war with the capture of Vicksburg.

Then during the Spanish-American War of 1898, rail was again used, however, the system was severely taxed which pointed out the necessity for the military to manage the railroads in time of war.

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Army Rail World War I

World War I burdened the U.S. rail system beyond its capacity to support the American Expeditionary Forces (A.E.F.).

In December of 1917, the railroads were federalized which improved the movement of troops and materials within the confines of borders of the United States.

To expedite the movement of troops and materials in Europe, locomotives and rolling stock were obtained from the Belgians.

World War I burdened the U.S. rail system beyond its capacity to support the American Expeditionary Forces (A.E.F.).

Because the U.S. could not provide locomotives and rolling stock for the war effort, they were obtained from the Belgians to expedite the movement of troops and materials in Europe.

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Army Rail World War II

During World War II, the demands for both civilian and military rail usage in the United States was more than double the requirements of those during World War I.

Overseas, rail operations were also being carried out in:

- North Africa
- Sicily
- Italy
- France
- United Kingdom
- Belgium
- Holland
- Germany
- The China-Burma-India Theater
- Philippine Islands
- New Caledonia
- Across the deserts of Iran to provide aid to the Soviet Union

During World War II, the Army operated railroads in the United States and overseas in: North Africa, Sicily, Italy, France, United Kingdom, Belgium, Holland, Germany, The China-Burma-India Theater, Philippine Islands, New Caledonia, and across the deserts of Iran to provide aid to the Soviet Union.

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Army Rail Korean War

Rail was again employed during the Korean War. Korea, with its poor roads and mostly mountainous terrain, again emphasized the use of the rail systems.

Trains could carry more tonnage over longer distances in a shorter period time than trucks.

Rail was again employed during the Korean War. Trains could carry more tonnage over longer distances in a shorter period time than trucks.

This was accomplished using Department of Defense (DoD) rolling stock and Host Nation support, which continues today.

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Army Rail Desert Shield

During operation Desert Shield, rail systems were again used to move massive amounts of cargo and equipment.

These trains went from the Port of Ad Dammam to Riyadh, Saudi Arabia, using three trains a day of up to 132 cars from the Saudi Government Railway System.

During operation Desert Shield, rail systems were again used to move massive amounts of cargo and equipment.

THEATER RAIL RESPONSIBILITIES

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Lead-in

LEAD-IN

Most units will use their own organic equipment to move from one place to another in a military convoy as part of the deployment process.

Whether they are active Army units deploying to an aerial or sea port, or a Reserve or National Guard mobilized unit moving from its armory or reserve center to its mobilization station, there are logistical considerations that must be assessed regarding the most efficient method of transport to be employed.

When the unit does not possess sufficient organic lift capability or equipment, or possesses equipment that is non-roadable, movement by rail is the preferred mode of transport.

Even wheeled vehicles will move by rail if the distance is more than a one day's driving distance. This is called the "One Day" or "Four Hundred Mile" motor march criteria.

Utilizing rail movement as the preferred mode of transport becomes clear to the movement planner when the unit's organic resources are not sufficient to achieve deployment to an aerial or sea port of debarkation in a timely and efficient manner.

Once that decision is made, there are responsibilities that both the installation and deploying unit must meet.

As a Senior Transportation Officer, you must have a clear understanding of those responsibilities, and the procedures and principles that guide rail transport operations.

THEATER RAIL RESPONSIBILITIES

This is the Main Menu for the Theater Rail Responsibilities lesson.

This lesson will include information about: Primary Rail Functions, Rail Responsibilities, Rail Loading Procedures, and Rail Rolling Stock.

THEATER RAIL RESPONSIBILITIES

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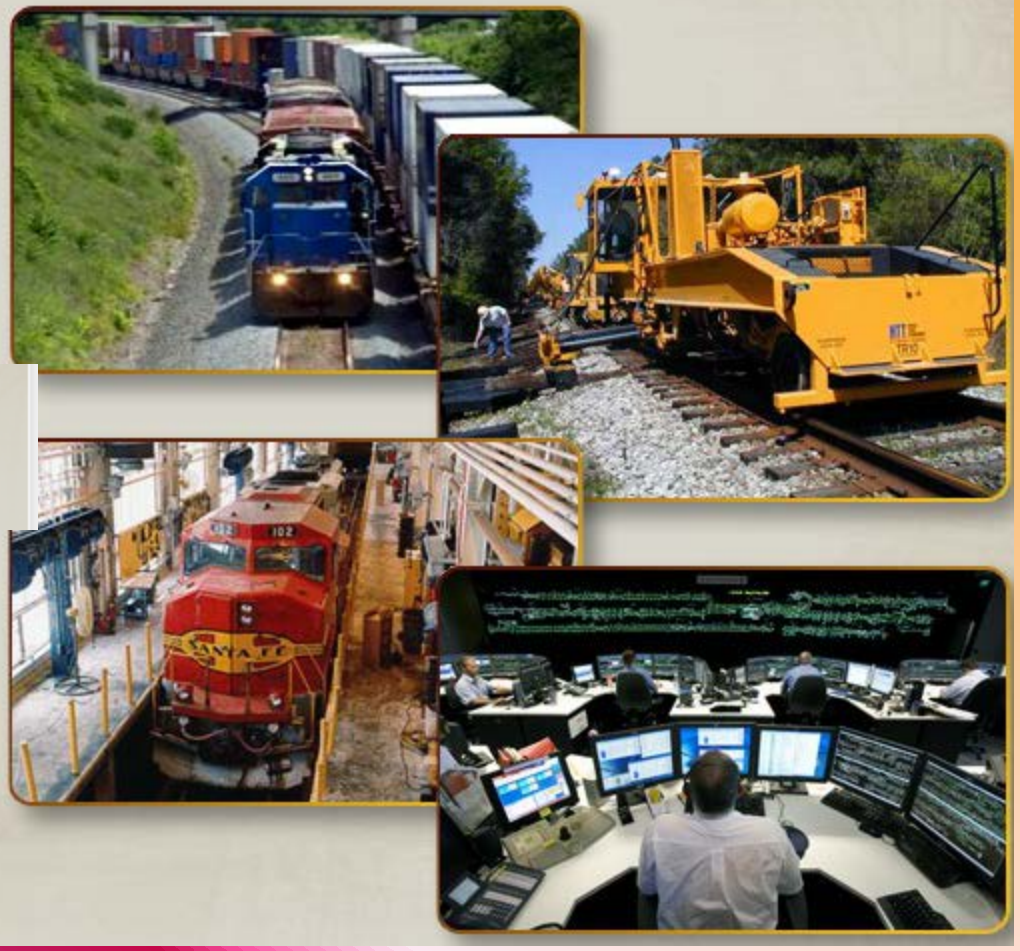
Primary Rail Functions

There are four primary functions of rail transport operations for military and commercial railways.

These functions include the following:

- Train operation
- Maintenance-of-way
- Maintenance of equipment
- Train Control



The primary functions of rail transport operations for military and commercial railways are: Train operation, Maintenance-of-way, Maintenance of equipment, and Train Control.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

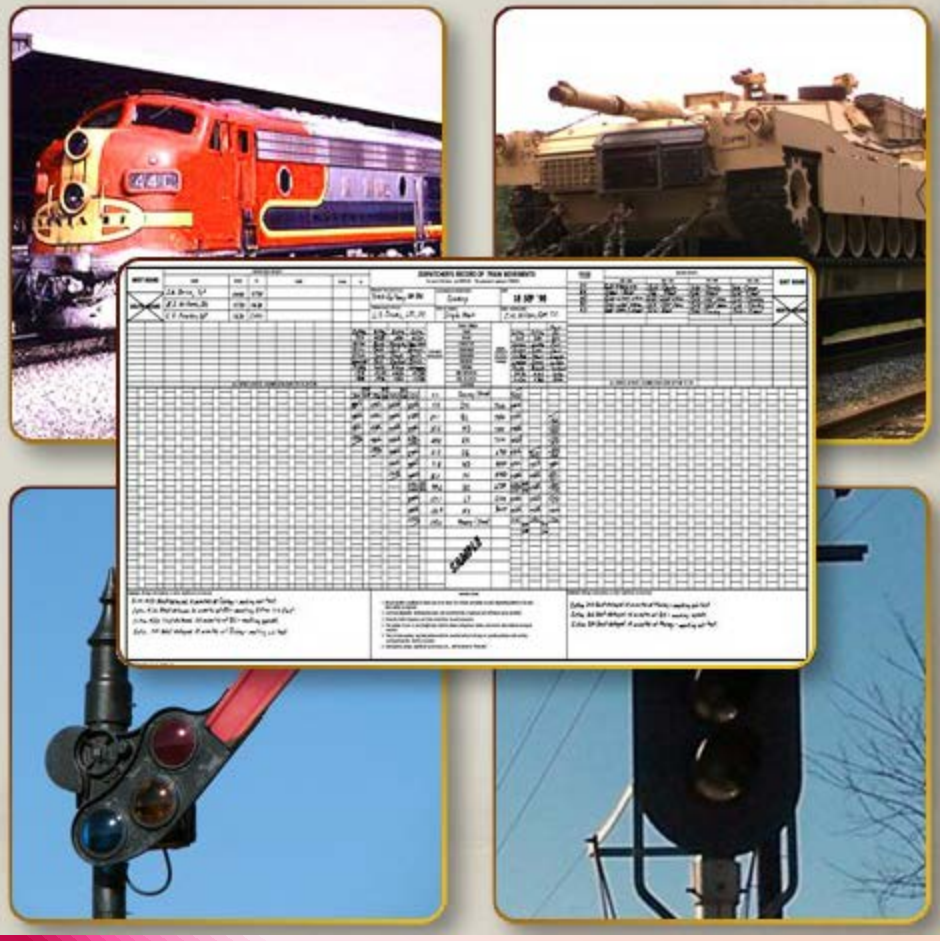
Train Operation

Military railroads operate on the same basic principles as commercial railroads which are:

- Locomotives pull rail cars loaded with freight and passengers.
- The movement of trains are controlled by schedule or signal communications.
- Trains are assigned priorities; therefore, some trains have superiority movement over others.

Theater rail operations consist of a broad initial or pre-invasion plan based on limited available intelligence data and assets available in the Host Nation.

As more detailed data becomes available, the initial plan is modified to capitalize on the potential movement capability of the theater railway system.



Military railroads operate on the same basic principles as commercial railroads. They move cars loaded with freight and passengers.

Train movement is controlled by schedules,signals,and priorities of movement as assigned to specific trains.

When entering into an operational environment, rail assets and capabilities must be known to create a rail utilization plan, which can be updated as more information becomes available.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Train Operation (cont.)

Because of the operational environment, rail operations that experience frequent disruption of supply and passenger transport must change with the aims and tactics of the opposing forces.

In areas subject to guerrilla warfare, trains should not move on schedule or use traffic patterns that can be anticipated.

If logistical considerations permit, all movement should be made in daylight with several freight (supply) trains running close together, at random intervals, for mutual protection.

Because the battlefield environment changes rapidly, those responsible for rail operations must learn and understand the tactics of the opposing forces to reduce the disruption to the movement of troops and materials.

Train movement should not be on a set schedule or use traffic patterns that can be anticipated.

Prior planning and precautions need to be taken to provide protection for the troops and cargo being transported.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Maintenance-of-Way

Maintenance-of-Way includes inspection of tracks, roadbeds, bridges, culverts, rail yards, tunnels, milepost signs, and highway grade crossings.

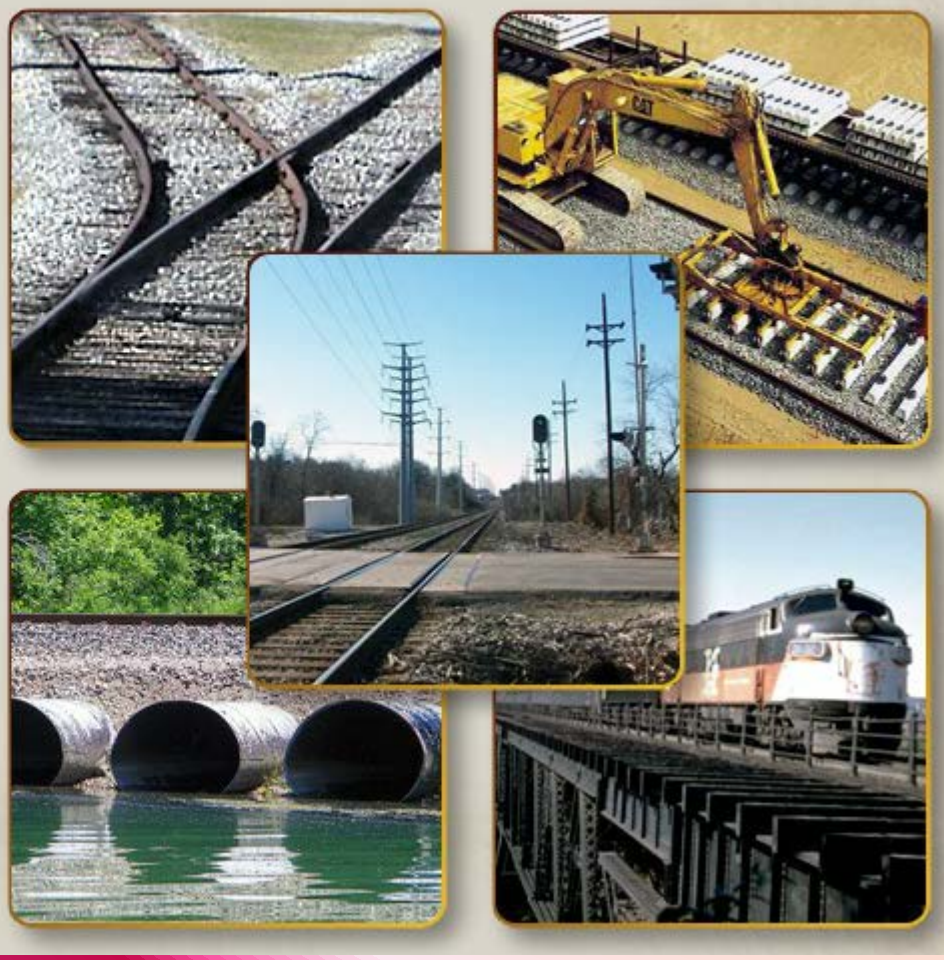
Maintenance-of-way and signal maintenance personnel restores tracks and communication facilities that have been damaged.

Maintenance-of-way includes inspection of tracks, roadbeds, bridges, culverts, rail yards, tunnels, milepost signs, and highway grade crossings.

Maintenance-of-Way

The Maintenance-of-way superintendent alerts the section foremen (in the required numbers) to assemble their crews, tools, and equipment at the wreck site or at a prescribed rendezvous point where they can be transported by the wreck train.

Ballast, rails, ties, and so forth, are usually available at emergency roadside stockpiles to supplement the limited quantity of track repair materials carried on the wreck train.



THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

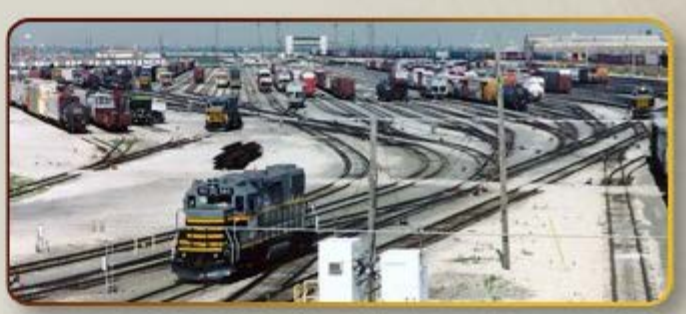
Maintenance-of-Way Reports

The maintenance-of-way superintendent uses maintenance-of-way reports to plan the work necessary to keep the rail system operational.

These reports cover:

- Normal operations in repair and rehabilitation work and are used by the battalion commander and higher HQ.
- Special reports are promptly made by electrical means on the extent of damage to bridges, buildings, tracks, and tunnels resulting from enemy or guerrilla action, floods, sabotage, slides, wrecks, or other causes.
- All personnel casualties are reported.
- If tracks are obstructed, an estimate is made as to the time required to restore traffic.

Progress reports are made periodically, as directed, until repairs are completed and the line is open for train movement.



The maintenance-of-way superintendent uses maintenance-of-way reports to plan the work necessary to keep the rail system operational due to normal wear and tear to adversarial actions.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Maintenance of Equipment

Interruptions in rail traffic in a theater of operations can be attributed to:

- Mechanical
- Human failure
- Natural cause
- Enemy actions

One of the leading causes of rail traffic interruptions is mechanical, which is normally due to failure to maintain equipment from the locomotives and rolling stock to the signal equipment.

Proper maintenance procedures are a must to keep the rail equipment operating. Sloppy maintenance will result in catastrophic accidents and time delays.

One of the leading causes of rail traffic interruptions is mechanical, which is normally due to failure to maintain equipment from the locomotives and rolling stock to the signal equipment.

Proper and timely maintenance is a must to keep a rail operation running smoothly and with as few interruptions as possible.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Train Control

Train control can be as simple as Wayside signaling to the more complex Automatic Train Control.

Train control consists of combination of the following:

- Wayside Signaling
- Cab Signaling
- Automatic Train Operations (ATO)
- Automatic Train Control (ATC)

Controlling trains as they move from one station to another is critical to the safe and timely movement of passengers and cargo.

Train control consists of: Wayside Signaling, Cab Signaling, Automatic Train Operations (ATO), and Automatic Train Control (ATC).

Newer systems of train control will become available as technology advances.

Train Control

While cab signaling and speed control technology has existed since the 1920s, adoption of ATC only became an issue after a number of serious accidents several decades later.

The Long Island Rail Road implemented its Automatic Speed Control system within its cab signaled territory in the 1950s after a pair of deadly accidents caused by ignored signals.

After the Newark Bay Lift Bridge Disaster, the state of New Jersey legislated use of speed control on all major passenger train operators within the State.

While speed control is currently used on many passenger lines in the United States, in most cases it has been adopted voluntarily by the train operating company.

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Wayside Signaling

A Wayside signal is a mechanical or electrical device erected beside a railway line to pass information relating to the state of the line ahead to train drivers/engineers.

Signals are used to indicate one or more of the following:

- That the line ahead is clear (free of any obstruction) or blocked.
- That the driver has permission to proceed.
- That points (also called *switch* or *turnout* in the U.S.) are set correctly.
- Which way points are set.
- The speed the train may travel.
- The state of the next signal.
- That the train orders are to be picked up by the crew.

Signals can be placed:

- At the start of a section of track.
- On the approach to a movable item of infrastructure, such as points/switches or a swingbridge.
- In advance of other signals.
- On the approach to a level crossing.
- At a switch or turnout.
- Ahead of platforms or other places that trains are likely to be stopped.
- At train order stations.

Under timetable and train order operation, the signals did not directly convey orders to the train crew.

Instead, they directed the crew to pick up orders, possibly stopping to do so if the order warranted it, or it might inform the driver of the speed at which the train may safely proceed.

However, using the Wayside signaling system, the driver will interpret the signal's indication and act accordingly.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Cab Signaling

Cab signaling is a railroad safety system that communicates track status information to the cab, crew compartment or driver's compartment, of a locomotive, rail car, or multiple units where the engineer or train driver can see the information.

The simplest systems display the track-side signal aspect (typically, green, yellow, or red, indicating whether it is safe to proceed or not), while more sophisticated systems also display allowable speed, location of nearby trains, and dynamic information about the track ahead.

In modern systems, a train protection system is usually overlaid on top of the cab signaling system to warn the driver of dangerous conditions, and to automatically apply the brakes and bring the train to a stop if the driver ignores the dangerous condition.

Cab signaling is a railroad safety system that communicates track status information to the cab, crew compartment or driver's compartment, of a locomotive, rail car, or multiple units where the engineer or train driver can see the information.

The simplest systems display the track-side signal aspect, while more sophisticated systems also display allowable speed, location of nearby trains, and dynamic information about the track ahead.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Automatic Train Operations

Automatic Train Operation (ATO) ensures partial or complete automatic train piloting and driverless functions.

Most systems elect to maintain a driver (train operator) to mitigate risks associated with failures or emergencies.

Many modern systems are linked with Automatic Train Control (ATC) where normal signal operations, such as route setting and train regulation are carried out by the system.

The ATO and ATC systems will work together to maintain a train within a defined tolerance of its timetable.

The combined system will marginally adjust operating parameters such as the ratio of power to coast when moving and station dwell time, in order to bring a train back to the timetable slot defined for it.

Automatic Train Operation ensures partial or complete automatic train piloting and driverless functions.

Most systems elect to maintain a driver (train operator) to mitigate risks associated with failures or emergencies.

THEATER RAIL RESPONSIBILITIES

Senior Transportation Officer Qualification Course
Theater Rail Operations

Automatic Train Control

Automatic Train Control (ATC) is a train protection system for railways, ensuring the safe and smooth operation of trains on ATC-enabled lines.

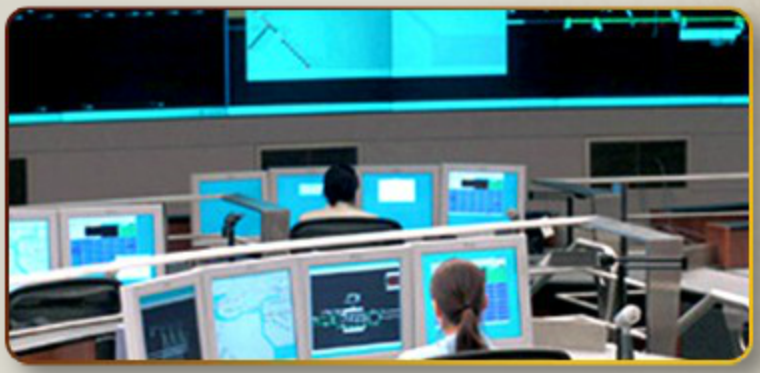
Its main advantages include:

- Making possible the use of cab signaling instead of track-side signals
- The use of smooth deceleration patterns in lieu of rigid
- Integrate with existing continuous cab signaling systems

The ATC comes from electronics in the locomotive that implement some form of speed control based on the inputs of the cab signaling system.

If the train speed exceeds the maximum speed allowed, the cab signaling system signals an over speed alarm in the cab.

If the driver fails to reduce speed and/or make a brake application to reduce speed, a penalty brake application is made automatically.



Automatic Train Control (ATC) is a train protection system for railways, ensuring the safe and smooth operation of trains on Automatic Train Control-enabled lines.

Due to the more sensitive train control issues with freight trains, ATC is almost exclusively applied to passenger locomotives in both inter-city and commuter service with freight trains making use of cab signals without speed control.

THEATER RAIL RESPONSIBILITIES

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Phases of Operation

Military railway operations are accomplished in three phases:

- **Phase I**: Military personnel only
- **Phase II**: Joint Military and Civilian personnel
- **Phase III**: Civilian personnel

These phases are normally conducted in sequence.

However, depending on military requirements, a Phase II or Phase III operation may be initiated without progression through the preceding phases or regress to a previous phase.

These phases aim to reduce requirements for military units and personnel for railway operations.

Therefore, skilled local labor and HNS is a prime consideration in initiating Phase II and Phase III operations.

Remember, phases and the terms "civilian labor" and "Host Nation Support (HNS)" are not synonymous terms, as HNS can be other than civilian labor.

Phase I

Only military personnel conduct Phase I operations. Personnel use this phase during the early stages of a military operation.

Phase I is used in or near the CZ where there is a need for the military and where security restricts the employment of civilians.

Phase II

This phase is a joint civilian-military operation under direct military supervision.

In this phase, military and local civilian railway personnel operate and maintain the railway lines.

Phase III

A Phase III operation is normally used in the rear areas of the communication zone (COMMZ).

Local civilian railway personnel operate and maintain rail lines under the direction and supervision of the highest military railway echelon in the theater.

The operation is established as soon as practical. Under this operation, military railway personnel may be released for duty in more critical areas.

Military railway operations are accomplished in three phases: Phase I Military personnel only, Phase II Joint Military and Civilian personnel, and Phase III Civilian personnel.

Remember, phases and the terms "civilian labor" and "Host Nation Support" are not synonymous terms, as HNS can be other than civilian labor.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

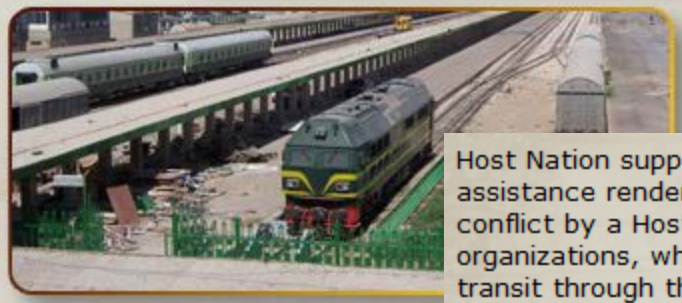
Host Nation Rail Operations

Rail is potentially the most efficient method of hauling large tonnages of materiel and equipment by ground transportation as exemplified by the large amount of cargo being moved in the Afghanistan conflict.

However, the Army normally depends on the Host Nation (HN) to provide this mode of transportation. The Army has limited railway construction and repair and railway-operating capability.

These Army assets augment Host Nation Support or provide those capabilities in theaters where Host Nation support is not available or is not capable or reliable.

Rail operations are limited to existing rail networks. In Germany and Korea for example, there are Department of Defense rail cars that are used by the Host Nation to move Army equipment.



Host Nation support means civil and military assistance rendered in peace, emergencies, crisis, and conflict by a Host Nation to Allied Forces and organizations, which are located on, operating in or in transit through the Host Nation's territory.

Arrangements concluded between the appropriate authorities of Host Nations and the "Sending Nations" and/or the NATO form the basis of such assistance.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Host Nation Rail Operations (cont.)

Each potential Host Nation (HN) in NATO (with emphasis on Germany, the Netherlands, Belgium, and France) operates a sophisticated, modern railway system.

The western area of Europe offers multiple routing possibilities, plenty of marshalling yards, and discharge/loading terminals.

Rail line repair and equipment maintenance facilities are dispersed throughout the system.

However, the European railway system poses the following potential limiting factors:

- Primary dependence on electrical train operations.
- Civilian dependence on uninterrupted rail support.
- Improbability of civilian rail personnel being used in the combat zone (CZ) (corps and division).

Each potential Host Nation in NATO (with emphasis on Germany, the Netherlands, Belgium, and France) operates a sophisticated, modern railway system.

However, the European railway system poses the following potential limiting factors: primary dependence on electrified train operations, civilian dependence on uninterrupted rail support, and improbability of civilian rail personnel being used in the combat zone (corps and division).

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Host Nation Rail Operations (cont.)

The Army will use the following HN support as needed to operate the rail system without extensive rail construction or major engineer reconstruction:

- Existing tracks
- Locomotives and rolling stock
- Switching modes
- Marshalling yards

Personnel should consult and comply with Allied Movement Publication (AMovP2) before moving trains across NATO borders.

The Army uses the area's existing rail structure as much as possible to support the Theater Army (TA).

The Army will use Host Nation: existing tracks, locomotives and rolling stock, switching modes, and marshalling yards as needed to operate the rail system without extensive rail construction or major engineer reconstruction.

FM 4-01.41
Army Rail Operations

Extensive rail construction is beyond the capabilities of a military force, except during a prolonged war when a civilian work force would be employed to operate the railroad.

In the past, U.S. Army transportation railway brigades, groups, battalions, and so forth operated the theater rail system.

Rail units now supplement existing HN rail systems or control and operate a contingency area's rail system.

In some cases, the service organization is much smaller than was needed in the past.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Key Points

The following key points were discussed:

KEY POINTS

- Primary Rail Functions
  - Train Operation
  - Maintenance-of-way
  - Maintenance of Equipment
  - Train Control
- Phases of Operation
- Host Nation Support

The following key points on Primary Rail Functions were discussed: Train Operation, Maintenance-of-way, Maintenance of Equipment, Train Control, Phases of Operation, and Host Nation Support.

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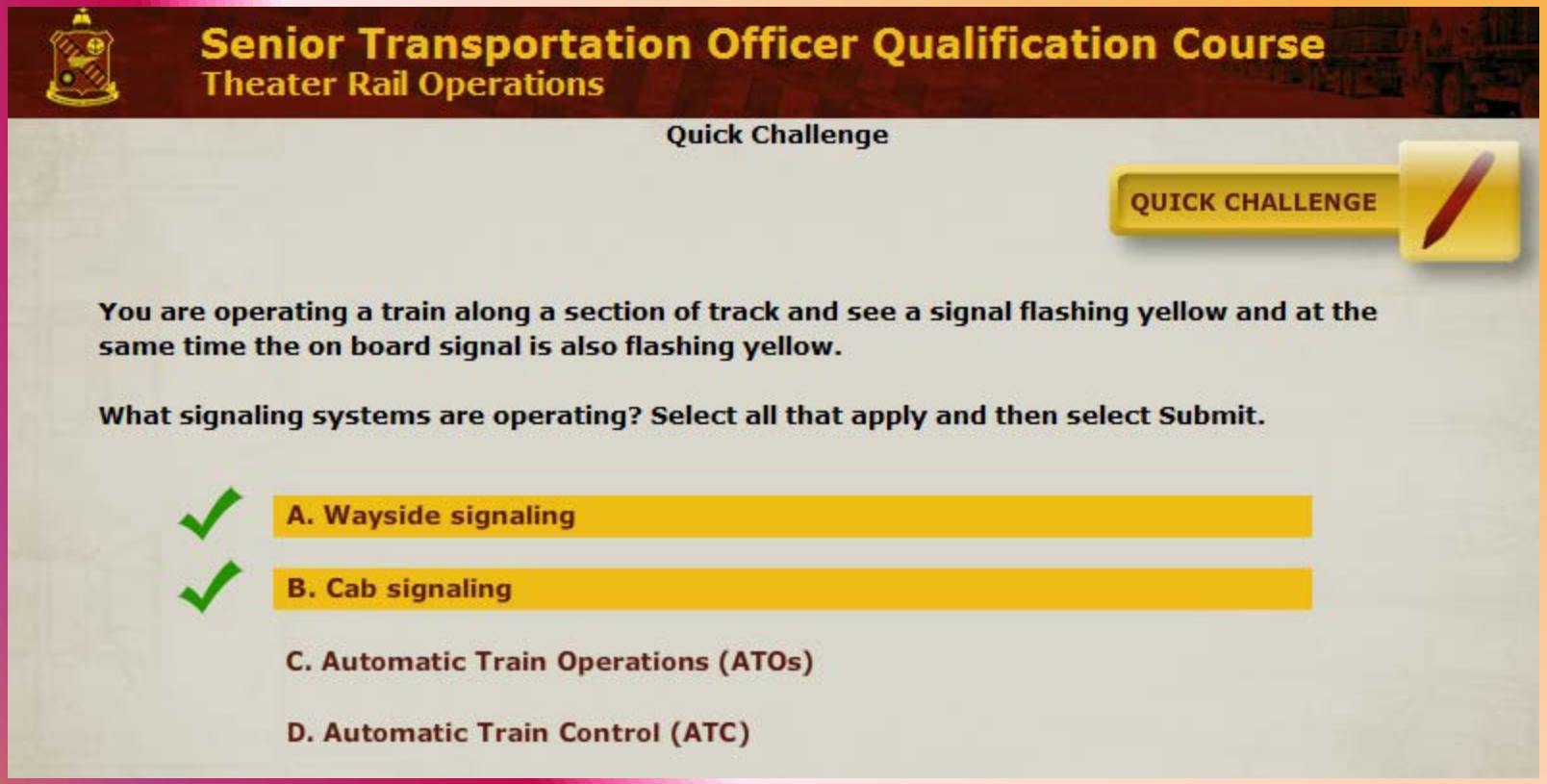

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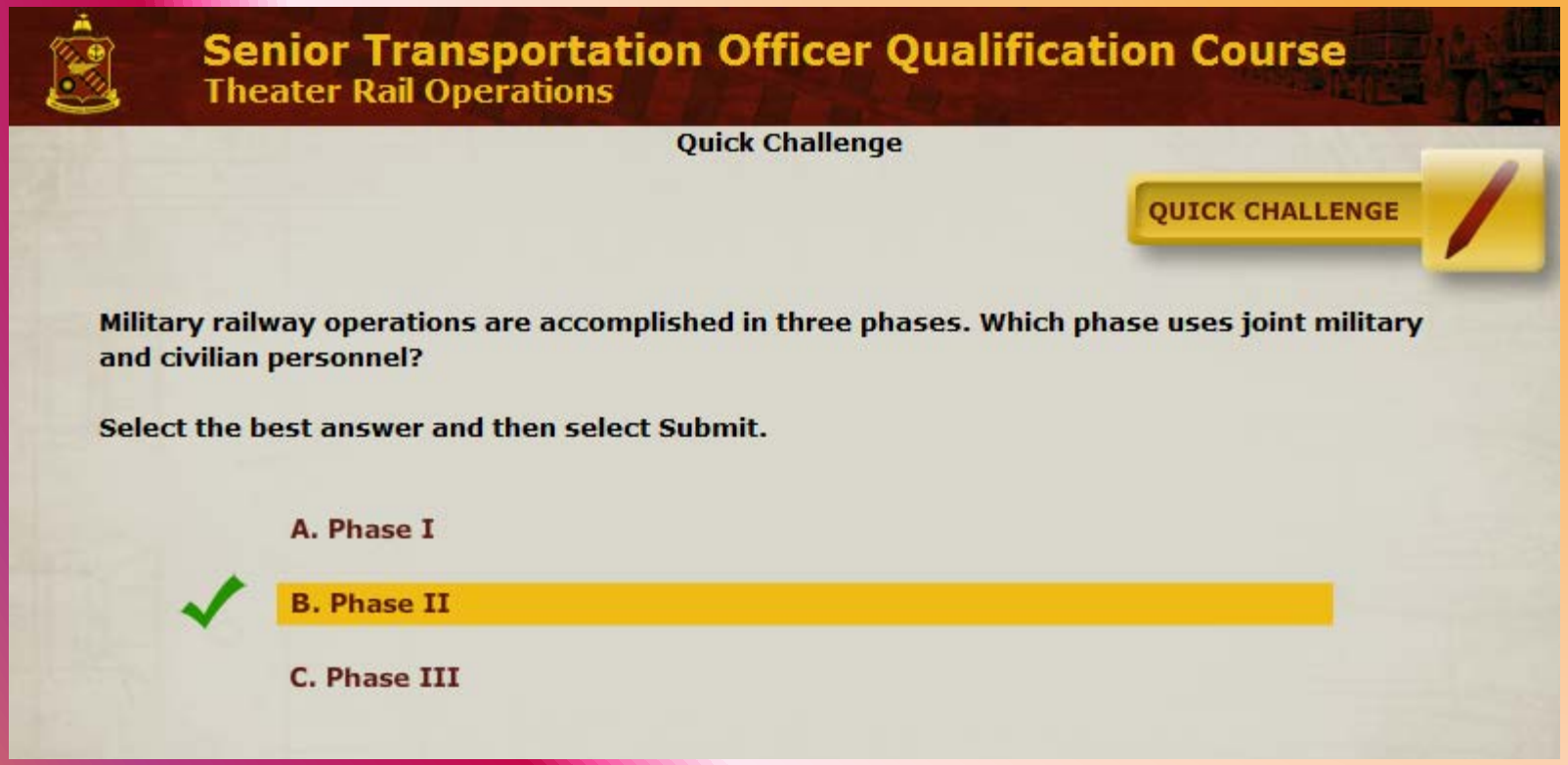

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Theater Rail Operations

Rail Operations Responsibilities

The rail transportation system is an integral part of the deployment process, serving as a primary mode of transportation for moving deploying unit equipment, such as tracked and wheeled vehicles, to the sea ports of embarkation.

Organizations and individuals have specific responsibilities that must be performed before, during, and after the loading of rail cars.

The major players in rail deployment are:

- Deploying units
- Installation Transportation Officer (ITO)
- Director of Public Works (DPW)
- Rail Carrier Representatives

During a rail deployment, the deploying units, Installation Transportation Officer, Director of Public Works and the Rail Carrier Representatives have specific duties to perform before, during, and after the loading of the rail cars.

THEATER RAIL RESPONSIBILITIES

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Unit Responsibilities

The Unit Commander has the overall responsibility of preparing the unit for rail operations.

These responsibilities include:

- Preparing the rail movement Plan
- Determining rail movement requirements
- Developing the Unit Deployment List (UDL)
- Appointing an officer in charge (OIC) for the operation
- Designating a safety officer
- Coordinating with the Director of Public Works for blocking and bracing materials
- Providing trained load teams
- Conduct safety briefings

Planning for rail operations includes the development of the Unit Deployment List. This specifies the equipment that a unit is allowed to take with it during a deployment.

The more frequently a unit's equipment information is up-dated, the more accurate the information is when an organization must deploy. Likewise, careful preparation of movement plans is also required.

The Transportation Coordinators' Automated Information for Movements System II (TC-AIMS II)

TC-AIMS II can be used to develop the Unit Deployment List (UDL), the Organization Equipment List (OEL), as well create the different legs under the mode of transportation used.

TC-AIMS II can be used to build the load plans for all modes of transportation.

Rail loads plans can also be built using I-CODES or manually based on the configuration of the equipment and the rail car capacity.

Here's a brief overview of TC-AMIS II: TC-AIMS II provides automated support to functions now performed by unit and installation Transportation Coordinators (TCs), who may be using manual processes.

TC-AIMS II improves and expedites unit movements and Transportation Operating Agency (TOA) actions, and provides a source of timely and accurate deployment information for use at all Joint Deployment Community (JDC) command levels.

Under TC-AIMS II, unit movement, installation transportation, and load planning functionality is accessible from a single client platform at the unit/installation level.

The processing, tracking, and reporting of data is available to decision makers at various command levels.

TC-AIMS II includes automated support to assist unit commanders to create, maintain, manage, and update unit equipment, personnel, and deployment information, and databases.

It also facilitates planning and execution of organic movements. TC-AIMS II incorporates the mechanism for identifying assets and requirements for force deployment/redeployment on deliberate and crisis action planning.

It provides tools to support continuous data process management, planning and execution of deployments, and asset tracking. Movement planning starts with the establishment of unit move requirements and ends with the arrival of required assets at a destination point.

The planning function includes preparation and execution of convoys (assigning, loading, staging, moving, controlling, coordinating, tracking, etc.). In addition, the unit move function supports rail, air, and ship loading.

THEATER RAIL RESPONSIBILITIES

Senior Transportation Officer Qualification Course
Theater Rail Operations

Unit Responsibilities (cont.)

The Unit Commander is further responsible for:

- Preparing the equipment for rail movement
- Coordinating logistical support for railhead operations (lighting, latrines, mess, and medical)
- Inspecting rail cars with ITO
- Spotting sufficient numbers of rail cars
- Preparing rail cars for loading
- Loading equipment on rail cars

Units are required to conduct loading operations at the railhead, to include the coordination of support.

The latter includes such things as ITO personnel representation, food, medical support, and similar required assistance.

Units also inspect empty rail cars in conjunction with the ITO.

THEATER RAIL RESPONSIBILITIES

Senior Transportation Officer Qualification Course
Theater Rail Operations

Installation Transportation Office

The Installation Transportation Office (ITO) is responsible for the following:

- Computes the number of rail cars required based on the shipping configuration of the equipment and deploying unit requirements.
- Inspects rail cars with Association of American Railroads (AAR) rules.
- Provides technical supervision of rail loading operations.
- Acts as liaison between Surface Deployment and Distribution Command (SDDC) and rail agent.
- Notifies the Unit on type and quantity of rail cars, and rail car arrival schedule.
- Maintains rail loading schedule according to the movement order/directive.

The ITO also provides technical supervision and assistance to the deploying unit during rail loading operations.

Coordination and liaison between the deploying unit, SDDC, and the rail agent is another of the ITO's responsibilities.

The ITO must also monitor the rail loading schedule to keep the trains moving on time.

Unit	Preventive Maintenance Inspection Date/Time/Place	Vehicle Staging Date/Time/Place
HDD 191st ORD	23 Nov / 0900 HDD Motorpool M/P	30 Nov / 0600 Railhead
720th ORD	30 Nov / 0800 Transportation M/P	30 Nov / 0830 Railhead
5th QM	24 Nov / 1300 5th QM M/P	30 Nov / 0900 Railhead
23d ORD	30 Nov / 0900 23d ORD M/P	2 Dec / 0600 Railhead
563d ORD	23 Nov / 0900 563d M/P	2 Dec / 0800 Railhead

The Installation Transportation Office or ITO, is responsible for computing the number of rail cars necessary to move a unit based on the configuration of the equipment and the deploying unit requirements, which come from the unit deployment plan.

The ITO, in conjunction with the deploying unit, inspects rail cars for usability and safety, using the Association of American Railroads rules.

THEATER RAIL RESPONSIBILITIES

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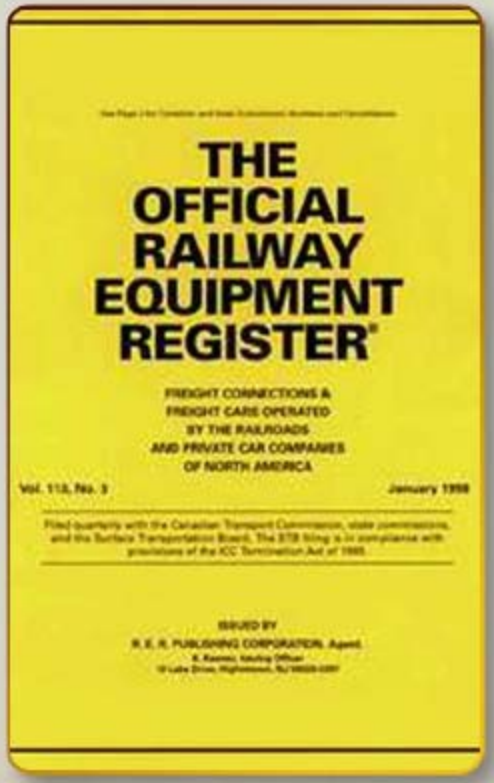
Installation Transportation Officer (cont.)

The Installation Transportation Officer will use "The Official Railway Equipment Register" and an automated rail load planning software to determine which types and quantity of cars to order based upon the type of units being deployed and their unique equipment characteristics.

These cars may be either Department of Defense owned cars, or cars owned by commercial rail lines or a mixture.

In addition, specialty cars may be required to move heavy or outsized equipment.



The Installation Transportation Officer will order the necessary rail cars, based upon the type of units being deployed and their unique equipment characteristics.

These cars may be either Department of Defense owned cars, or cars owned by commercial rail lines.

THEATER RAIL RESPONSIBILITIES

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Director of Public Works

The Director of Public Works (DPW) provides the blocking and bracing materials, known as "dunnage", required to perform the loading/securing of unit equipment, cargo, and vehicles on rail cars.

The amount of dunnage materials necessary is determined based upon the information provided by the units.

The Director of Public Works provides the dunnage required to perform the loading of unit equipment, cargo, and vehicles on railcars.

THEATER RAIL RESPONSIBILITIES

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Rail Carrier Representative

Upon arrival empty rail cars are inspected by the ITO and the rail carrier representatives for serviceability prior to being spotted at the loading ramps.

Once the cars have been loaded, they are again inspected to ensure:

- That the loads are properly and evenly distributed
- That a distribution of half the weight is over each rail car truck
- That the rail car load limits are not exceeded
- That cargo is properly secured by chains, wire, blocks, and braces in accordance with AAR rules
- That the height and width dimensions are within the clearance limits for the route to be traversed

The ITO and the rail carrier representatives will inspect rail cars for serviceability prior to spotting them for loading.

After the rail cars are loaded they will be inspected again by the ITO and the rail carrier representatives to insure that the cars are loaded properly and that the cargo is correctly secured.

SDDCTEA
Pamphlet 55-19

Chain tie-down devices are used to prevent cargo shifting as the rail car goes over crossings, switches, and other rail irregularities.

On wooden deck cars, chock blocks, side blocks, and wire cable control longitudinal, lateral, and vertical motion.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

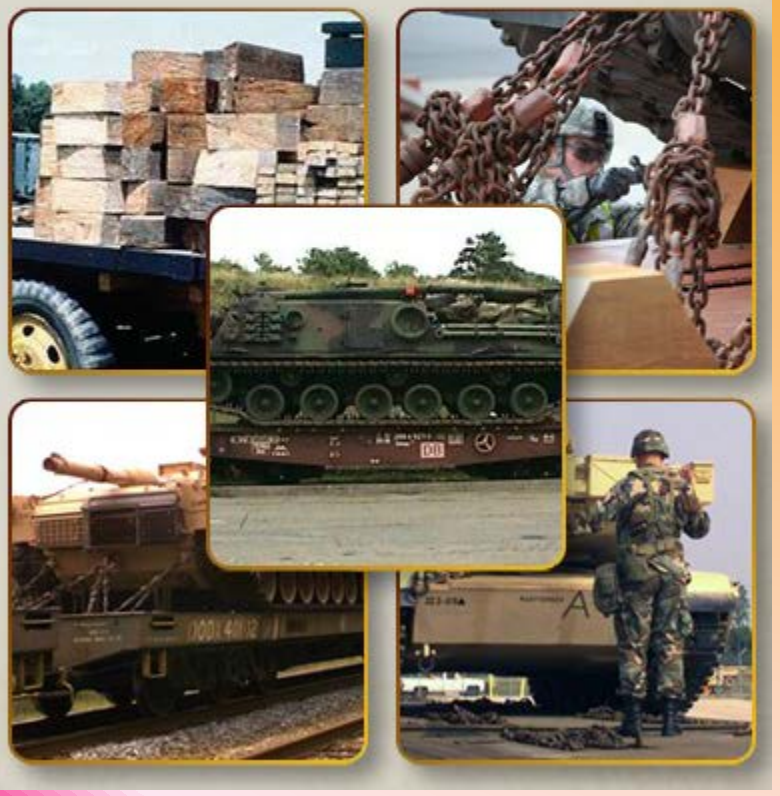
Key Points

The following key points on Rail Operations Responsibilities were discussed:

KEY POINTS

- Unit
- Installation Transportation Officer (ITO)
- Director of Public Works (DPW)
- Rail Carrier Representative

The following key points on Rail Operations Responsibilities were discussed: Unit, Installation Transportation Office or Officer, Director of Public Works, and Rail Carrier Representative.



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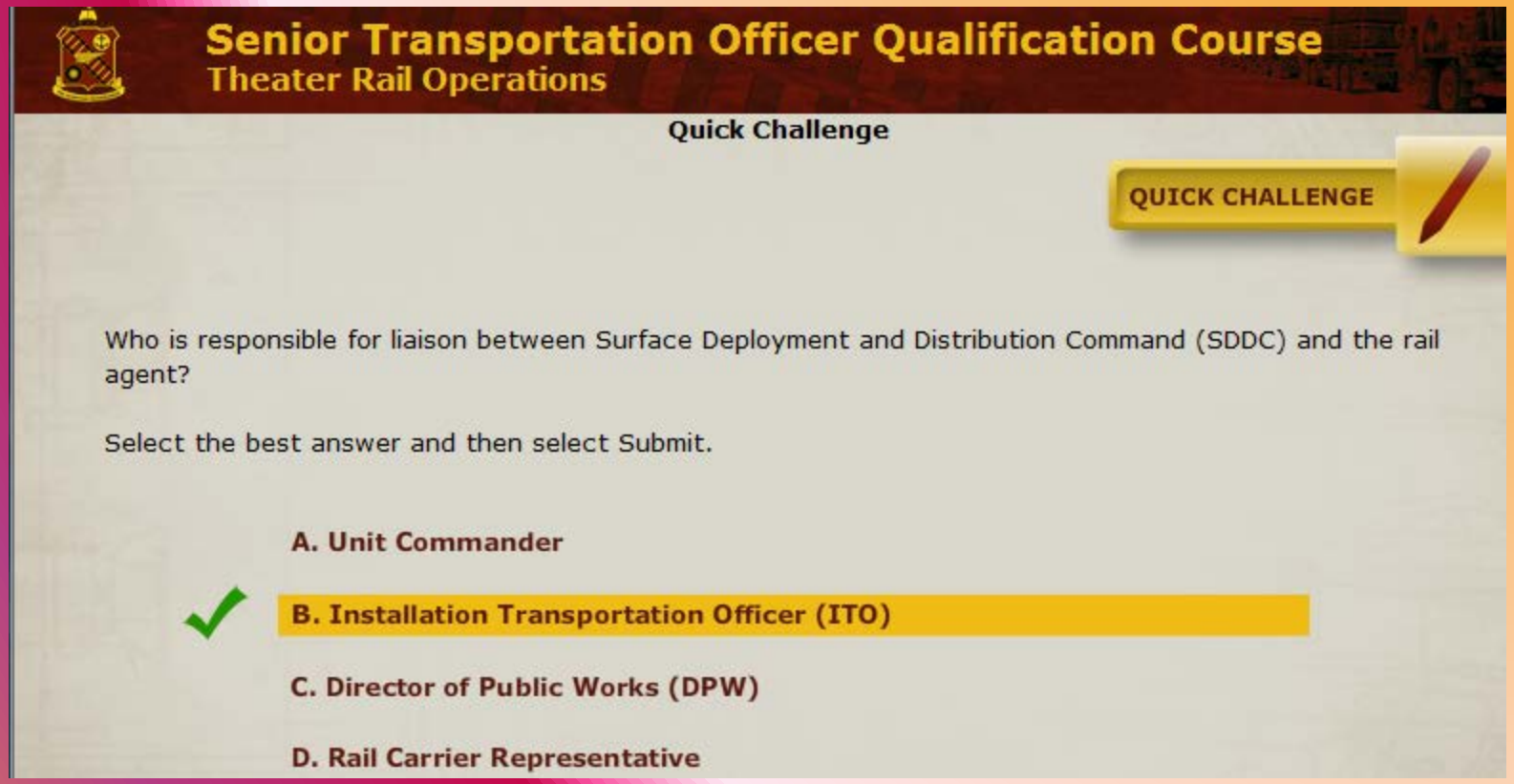

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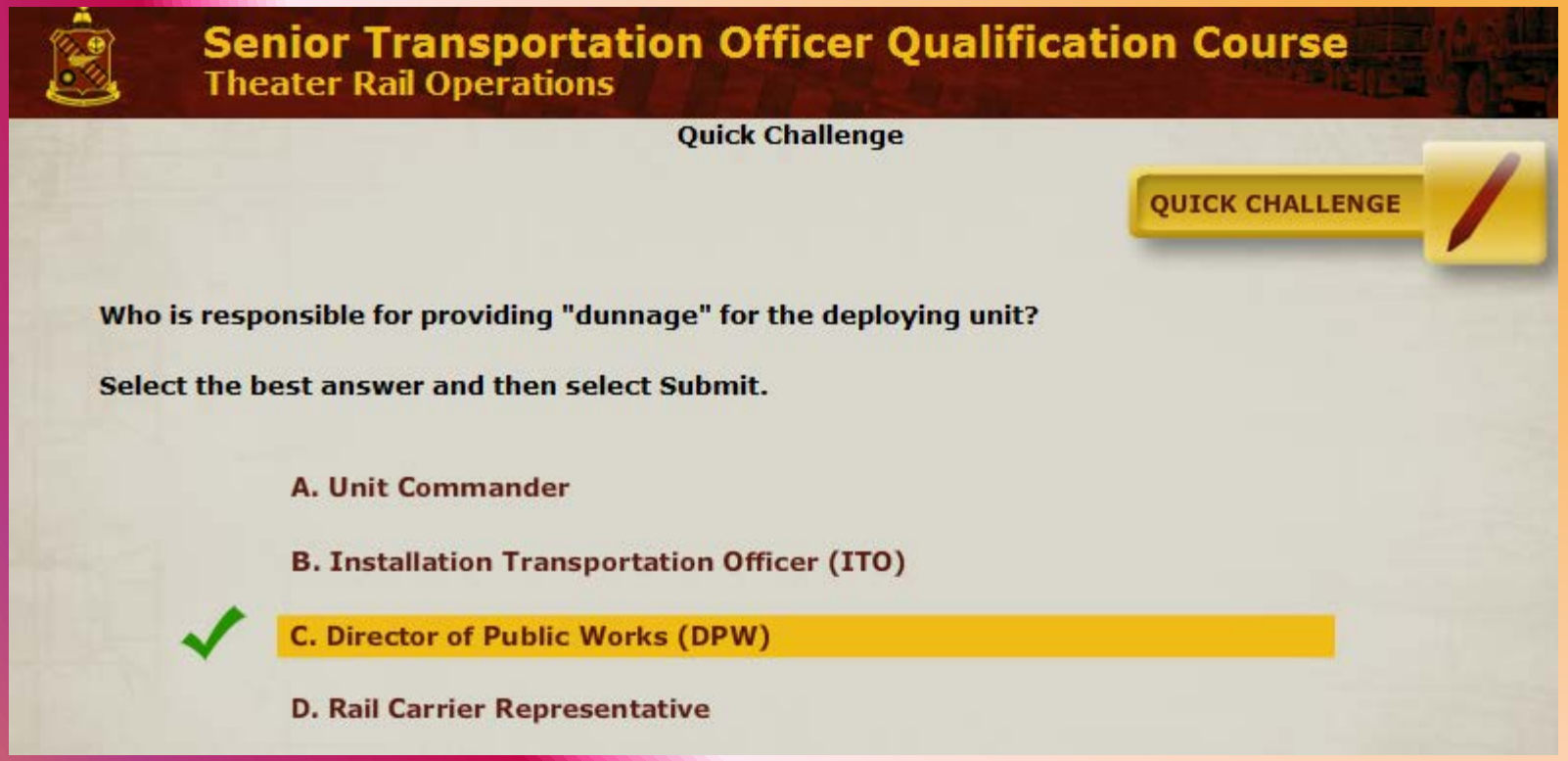

THEATER RAIL RESPONSIBILITIES

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Rail Loading Procedures

Rail loading procedures begin at the unit level where the vehicles and equipment are prepared for deployment.

Vehicle preparation requirements are:

- All lifting and tie down shackles attached to the vehicles
- Fuel tanks no more than 3/4 full
- Windshields protected
- Reduce vehicle configuration
- Secure any materials or equipment
- Ensure that hood latches are functional and secure
- Banding must be approved by AAR

The units are required to conduct the loading of their equipment and vehicles at the installation or other designated railhead.

Well prior to the actual conduct of rail loading; however, units must have prepared their vehicles and equipment for loading.

THEATER RAIL RESPONSIBILITIES

Senior Transportation Officer Qualification Course
Theater Rail Operations

Safety

All unit personnel should be given a thorough briefing prior to starting any loading exercise.

All Soldiers should be briefed on the following safety procedures:

- Avoid electrical wires, poles, and switches.
- Never walk between or backward on rail cars.
- No running or jumping between rail cars.
- No sleeping in or around cars.
- Stay clear of main or active track.
- Stay clear of rail cars when vehicles are moving on the cars.

Unit personnel working around the rail cars and yard loading equipment should receive a safety briefing covering the listed areas.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Safety (cont.)

Additional Unit Rail safety responsibilities are:

- Ground guides are positioned one rail car ahead of the rail car being loaded.
- Ground guides escort all vehicles onto ramp and rail car, and use proper hand and arm signals.
- Ground guides stay in clear view of driver at all times.
- Rail site must be clean and free of debris.
- Ensure that proper rail car spanners are available.
- Ensure that the Material Handling Equipment (MHE) is on site for equipment that requires MHE support.

Additional Unit Rail safety responsibilities are: Ground guides stay in clear view of the driver at all times and are positioned one rail car ahead of the rail car being loaded.

They will also escort all vehicles onto loading ramp and rail cars.

The unit is also responsible for safety of the rail site by removing any debris and providing proper Material Handling Equipment for rail car loading.

THEATER RAIL RESPONSIBILITIES

Senior Transportation Officer Qualification Course
Theater Rail Operations

Rail Car Inspections

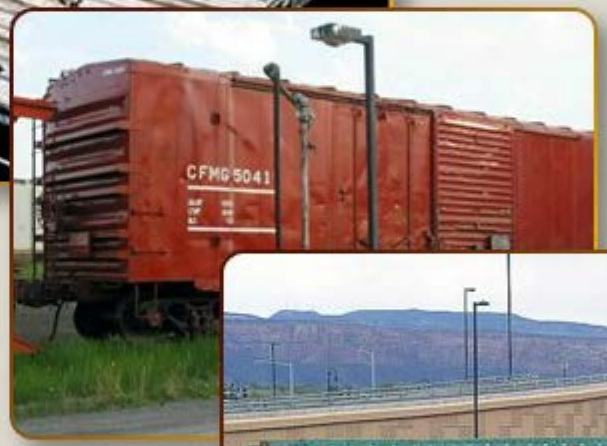
The ITO, along with the deploying unit, inspect the rail cars prior to them being positioned at the final loading locations.

The purpose of the inspection is to determine the cars suitability for the intended equipment or vehicle loads.

After the rail cars are accepted, the Military accepts full responsibility to comply with AAR rules.

The cars are inspected for:

- Check the doors on closed cars to ensure that they open and close
- Check the interior ensuring that it is free of debris
- Open car decks are free of residue and old blocking and bracing materials (dunnage)
- Visible signs of danage tothe rail car deck
- Chains are present and serviceable on chain rail cars
- Inoperable coupling devices



The ITO, along with the deploying unit inspect the rail cars for the proper operation of doors on closed cars, chains present and serviceable on chain cars, and that both open and closed cars are free of residue and debris.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Stage Vehicles Prior to Loading

Loading of rail cars should proceed in the following order:

- Vehicles should be staged in the order that they will be loaded on to the rail cars. Manual Load Planning Work Sheets are used in this process.
- Vehicles are moved onto the rail cars using the circus method which is the first vehicle loaded moves to the last rail car from the loading ramp.
- Wheeled vehicles should use spanners between rail cars. Track vehicles may span the short distances between cars.

All safety precautions must be followed and ground guides used when ever a vehicle is moving.

At the rail head in the staging area, the vehicles and equipment should be staged in the order that they will be loaded.

Manual Load Planning Work Sheets are helpful at this point to correctly place the vehicles.

Begin loading vehicles using the circus method with wheeled vehicles using spanners between cars.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Rail Car Loading

When loading vehicles on rail cars, remember the following:

- Vehicles should be placed so that the weight does not exceed one-half the load limit of the rail car on any axle.
- A minimum of 10 inches of space between vehicles is required.
- Do not exceed the rail car load limits.
- Do not exceed the overhang distance front to back which, is no more than one inch difference side to side. Also vehicles must not be so wide that more than one-half the surface of tires or tracks extends beyond the side sill.

As vehicles are loaded onto rail cars, they should be placed so that the weight does not exceed one half the load limit of the rail car on any axle.

There should be a minimum of 10 inches of space between vehicles.

Most important, do not exceed the rail car load limits and when loading out-sized vehicles and cargo, do not exceed the overhang restrictions.

THEATER RAIL RESPONSIBILITIES

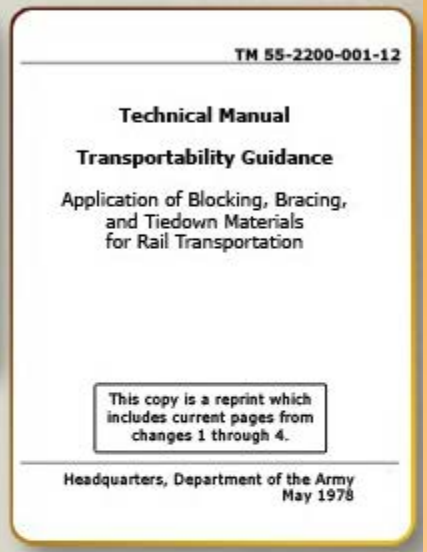
Senior Transportation Officer Qualification Course
Theater Rail Operations

Blocking, Bracing, and Tie-down Procedures

Blocking, Bracing, and Tiedown Procedures are outlined in:

- Technical Manual (TM) 55-2200-001-12
- Surface Deployment and Distribution Command (SDDC) Transportation Engineering Agency (TEA) Pamphlet (PAM) 55-19, Edition 6.3.

These references should be used when checking the Blocking, Bracing, and Tie-down procedures used for vehicles and equipment.



TM 55-2200-001-12

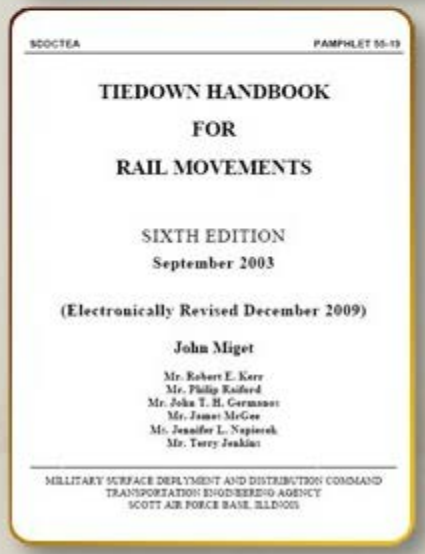
Technical Manual

Transportability Guidance

Application of Blocking, Bracing, and Tiedown Materials for Rail Transportation

This copy is a reprint which includes current pages from changes 1 through 4.

Headquarters, Department of the Army
May 1978



SDDCTEA PAMPHLET 55-19

TIEDOWN HANDBOOK
FOR
RAIL MOVEMENTS

SIXTH EDITION
September 2003

(Electronically Revised December 2009)

John Miget

Mr. Robert E. Kerr
Mr. Philip Kulford
Mr. John T. H. Germanos
Mr. James McGee
Ms. Jennifer L. Napierek
Mr. Terry Jenkins

MILITARY SURFACE DEPLYMENT AND DISTRIBUTION COMMAND
TRANSPORTATION ENGINEERING AGENCY
SCOTT AIR FORCE BASE, ILLINOIS

Use the listed references to inspect the Blocking, Bracing, and Tiedown Procedures for vehicles and equipment.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Final Load Inspections

The Rail Carrier Representative, ITO, and unit personnel will conduct a final inspection of the cars using the Association of American Railroads (AAR) Loading Rules.

The train will not depart until the Rail Carrier Representative is satisfied that the cars are loaded properly and that they will not pose a safety hazard to the rail road or any other person or property that the train may pass.

Extracts of these rules can be found in TM 55-2200-001-12 and TEA PAM 55-19.

Remember, the Rail Carrier Representative is the final approving authority for accepting rail loads.

A final inspection of the cars using the Association of American Railroad Loading Rules will be conducted by the Rail Carrier Representative, ITO, and unit personnel.

Remember, the Rail Carrier Representative is the final approving authority for accepting rail loads.

THEATER RAIL RESPONSIBILITIES

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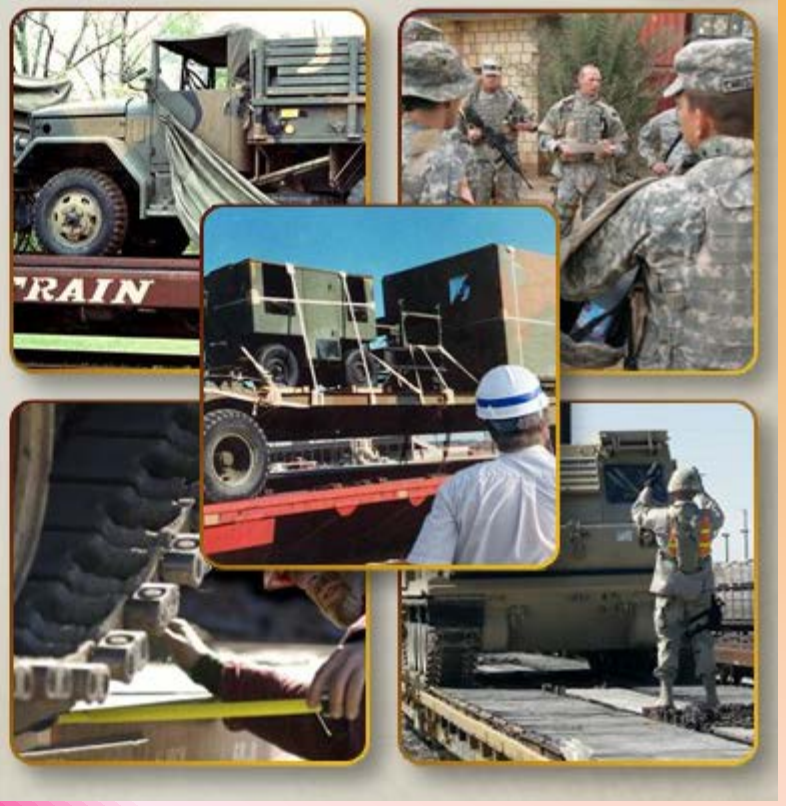
Theater Rail Operations

Key Points

The following key points on Rail Loading Procedures were discussed:

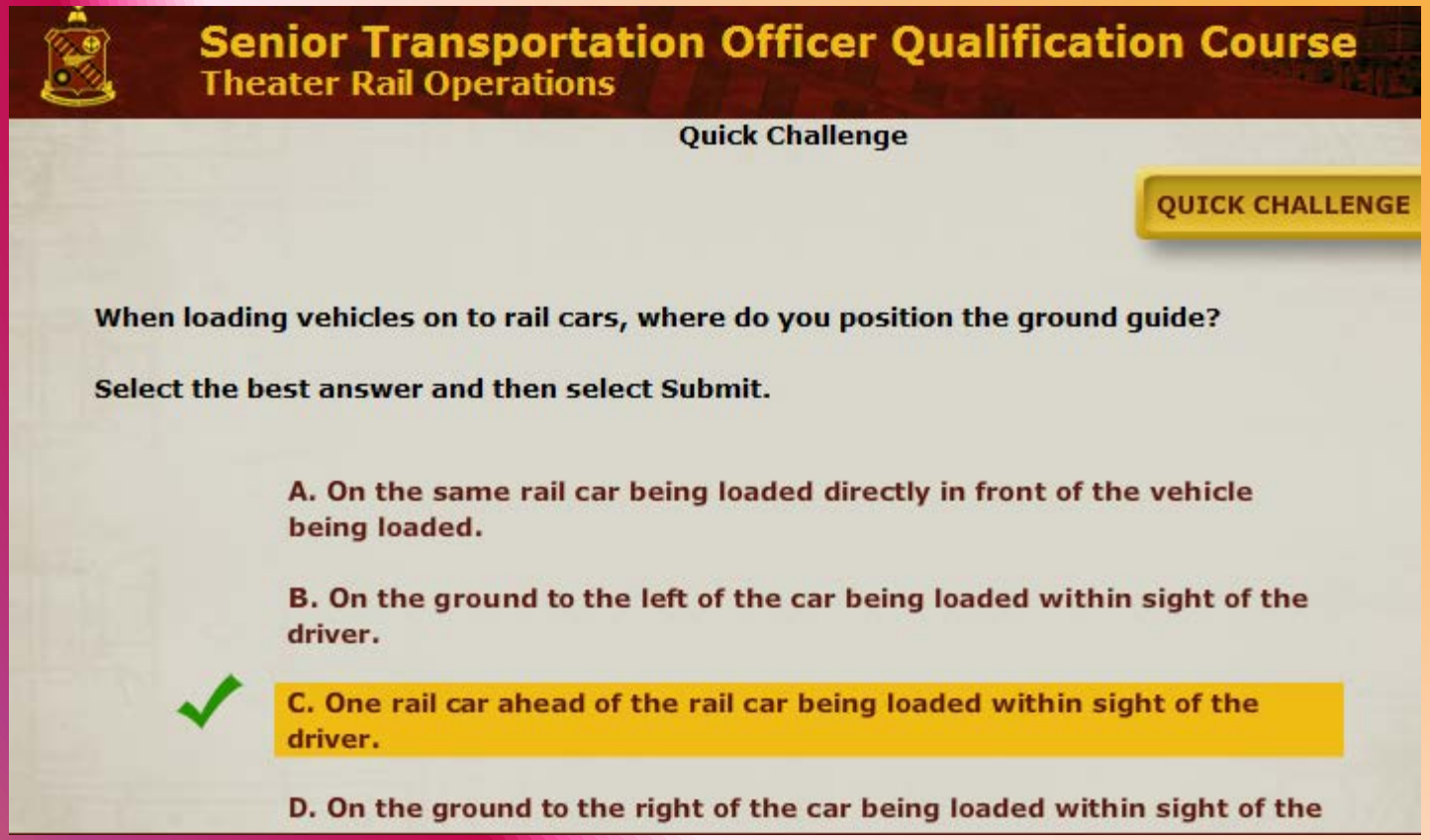
- Safety during Rail Loading Procedures
- Rail Car Inspections
- Vehicle Staging Prior to Loading
- Rail Car Loading
- Blocking, Bracing, and Tiedown Procedures
- Final Load Inspections

KEY POINTS



The following key points on Rail Loading Procedures were discussed: Safety during Rail Loading Procedures, Rail Car Inspections, Vehicle Staging Prior to Loading, Rail Car Loading, Blocking, Bracing, and Tiedown Procedures, and Final Load Inspections.

THEATER RAIL RESPONSIBILITIES



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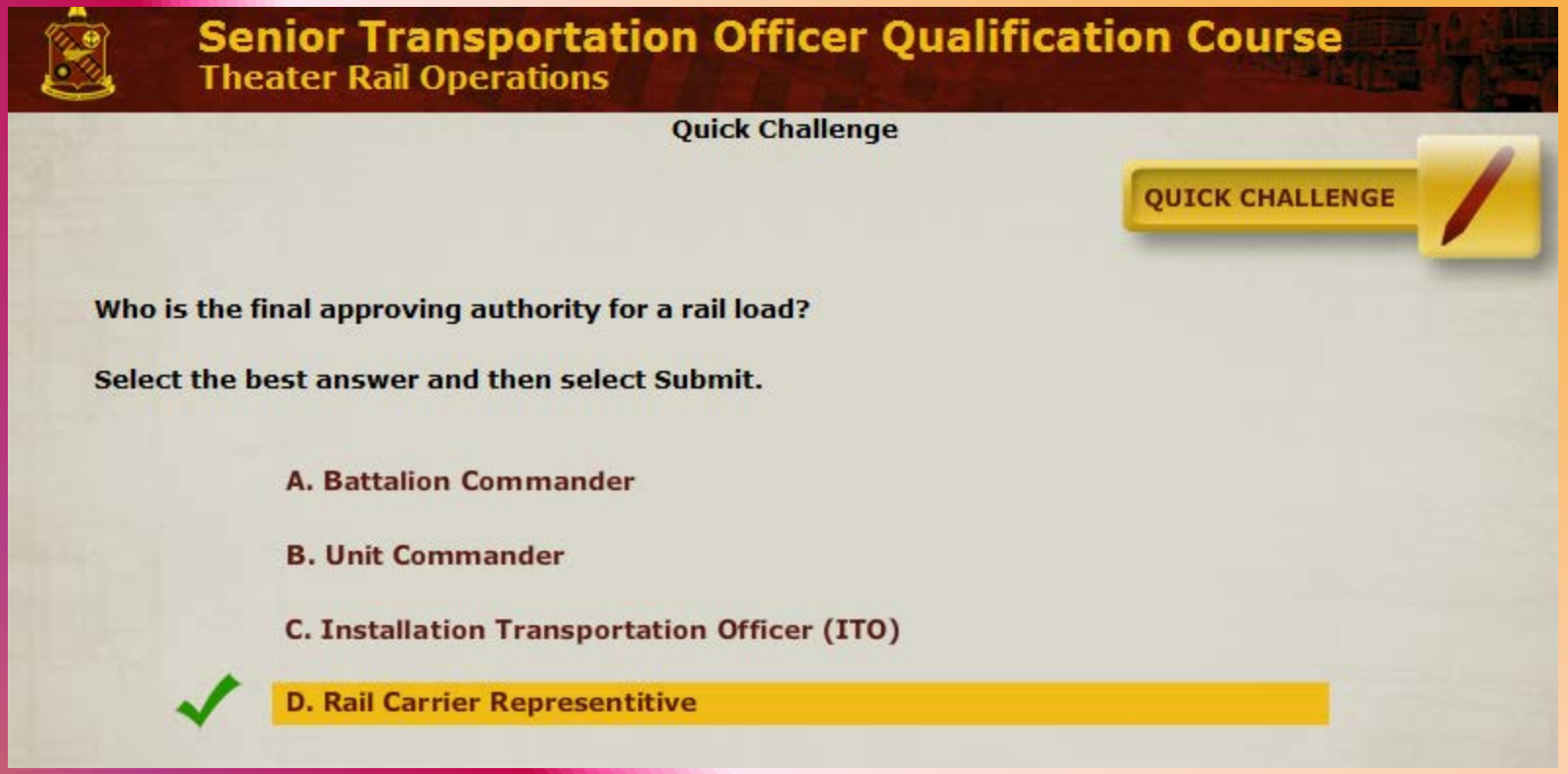

THEATER RAIL RESPONSIBILITIES

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Rail Rolling Stock

Effective and adequate transportation railway support of military operations in a theater requires efficient use of railway rolling stock.

The three classes of railway rolling stock are:

- Freight
- Passenger
- Special

The worldwide inventory of Army-owned rolling stock includes locomotive cranes, tank cars, freight cars of miscellaneous types, and other equipment.

It also includes numerous diesel-electric locomotives stored or in use in various parts of the world.

Effective and adequate transportation railway support of military operations in a theater requires efficient use of railway rolling stock.

The three classes of railway rolling stock are: Freight, Passenger, and Special.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Freight Rolling Stock

Freight rolling stock consists of boxcars, gondolas, flatcars, tank cars, refrigerator cars, and hopper cars.

The types of freight railcars used for military exercises and deployments are Open Top Cars, including

- Flat Cars
- Gondola Cars

The most militarily important rail car is the flat car.

There are times when these cars are also required under special circumstances:

- Closed Box Cars
- Specialty Cars
  - Multilevel
  - Heavy Lift
  - Trailer on Flat Car (TOFC)

The main type of freight rail cars used for military exercises and deployments is the Open Top Car, specifically the Flat Car.

Flat Cars may be either cars owned by the Department of Defense or by commercial rail lines.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Defense Freight Rail Interchange Fleet

The Defense Freight Rail Interchange Fleet (DFRIF) contains over 2,100 general and special purpose cars, the most common being flat cars, followed by tank, box, refrigerator, caboose, and Schnabel cars.

This fleet is used in preference to commercial rail equipment to satisfy DoD Component mission requirements, except when the use of commercial equipment produces a lower overall cost.

DFRIF cars are marked DODX. The DoD indicates that the fleet serves all the services, and X indicates that it is a private car fleet, that is, not owned by a railroad.

SDDC is the owner of the DFIRF and responsible for its management, including control, distribution, use, and maintenance.

838th TRANSPORTATION BATTALION
GATEWAY TO VICTORY

SDDC
Committed - Dependable - Relentless

The Defense Freight Rail Interchange Fleet is used in preference to commercial rail equipment to satisfy Department of Defense Component mission requirements, except when the use of commercial equipment produces a lower overall cost.

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Specialty Cars

The following Specialty cars are frequently required for their weight capacity, practical application, or for security reasons:

- Multilevel-cars
- Heavy duty / Lift cars
- Trailer/Container on Flat Car (TOFC / COFC)
- Railway Maintenance Car

Other types of specialty cars are designed for heavy or over-sized machinery, or to haul the rails themselves to be laid further up the track.

Specialty cars (in this case, a heavy duty or heavy lift crane car) may be deployed where material handling or off-loading equipment is unavailable.

Another example would be a rail or tie laying car to lay new track or to repair damaged track.

THEATER RAIL RESPONSIBILITIES

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Schnabel Cars

A Schnabel car is a uniquely specialized type of railroad car designed to carry heavy and oversized loads in such a way that the load itself makes up part of the car.

When a Schnabel car is empty, the two lifting arms are connected together, and the car can usually operate at normal freight train speeds.

Some Schnabel cars include hydraulic equipment that will either lift or horizontally shift the load while in transit (at very low speeds) to clear obstructions along the car's route.

A Schnabel-type railroad car is designed to carry very large loads, incorporating articulated end units that have a massive hinge at a reduced pivot location, so that the weight of the car can be carried at a central location on the trucks, while still pivoting about a lesser radius to help negotiate tight turns.

Special hydraulic systems permit the car, through on-board operator control, to be raised and lowered and also shifted laterally to provide additional roadbed clearance.

THEATER RAIL RESPONSIBILITIES

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Box Cars

Commodities that require some sort of protection from the elements, require refrigeration, or are attractive to pilferers are best carried in Box Cars.

For example;

- Foodstuffs
- Medicines
- Electronics
- Spare parts

Sizes range from 50 to 89 foot in length, with a variety of door opening widths.

U.S. Box cars in domestic service have a capacity of about 100k lbs., or over 3,900 cu. feet.

Their generalized design is still slower to load and unload than specialized designs, and this partially explains the decline in Box Car usage with the advent of containerized, intermodal transport alternatives.

Box Cars are ideal for commodities requiring protection from weather, refrigeration, or when susceptible to pilferage. For example; foodstuffs, medicines, electronics, and spare parts.

THEATER RAIL RESPONSIBILITIES

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Tank Cars

Tank Cars are available in a variety of sizes with a liquid capacity of from 8,000 to 20,000 gallons.

They are used to carry:

- Bulk liquids
- Chemicals
- Fuels

More than 170,000 are currently in service and many are owned by firms other than railroad units.

In addition, the SDDC has more than 500 tank cars in its Defense Freight Rail Interchange Fleet.

Moving bulk liquid products requires the use of Tank Cars.

The Tank Car is a rolling cylindrical tank used to carry all types of bulk liquids, from chemicals and fuels to corn syrup for food processing.

THEATER RAIL RESPONSIBILITIES

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Gondola Cars

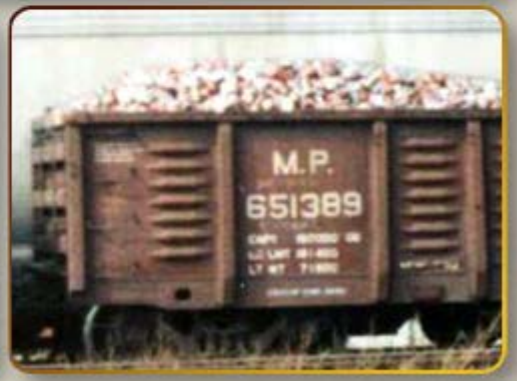
Gondolas are open top freight cars with four sides, which do not have the capacity to unload or "dump" bulk materials through bottom of car.

Some versions have tops that flip closed to protect the cargo from bad weather.

The configuration of these cars allows for bulk commodities to be loaded and secured with minimal tiedowns, as the sides preventing shifting.

Gondola Cars carry a range of freight, including wood chips, scrap metal, and coal.

Other examples of suitable cargo are engineer materials, concertina wire rolls, and 20 and 40 foot International Organizational for Standardization (ISO) containers.



The Gondola Car is often mistaken for the Hopper Car due to its open top, but they usually do not have the bottom hatch release of the Hopper Car, and they sit much closer to the ground.

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Hopper Cars

Hopper Cars are cars that are ideal for transporting loose bulk commodities, such as coal, grain, or wood chips. Versions can haul from 80 to 125 tons of bulk material.

The floor of the car slopes toward several hinged doors, that can be opened to allow the bulk materials to be discharged. These hinged doors, in the closed position, can be seen here.

Hopper Cars have sloped drop-bottom chutes that allow for discharge of aggregates such as coal, iron ore, or gravel by gravity into a receiving bin below the tracks.

Covered Hopper Cars are used to carry bulk cargo that needs to be protected from the elements.

THEATER RAIL RESPONSIBILITIES

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ASMP Cars

In order to meet surge requirements during the first week of a contingency or to offset potential commercial flat car shortages during subsequent weeks of a mobilization, the Department of Defense has procured and prepositioned its own fleet of railcars.

This prepositioned fleet of railcars, known as the Army Strategic Mobility Program (ASMP) fleet, is made up of a variety of DODX flat cars capable of transporting the full spectrum of Army wheeled/tracked vehicles.

The "circus loading" method uses flat cars as a roadbed with spanners between the railcars.

Vehicles are loaded from the rear most railcar and then moved forward to their assigned locations.

The primary purpose of the Army Strategic Mobility Program fleet of rail cars is to meet surge requirements during the first week of a contingency and to offset potential commercial flatcar shortages during subsequent weeks of a mobilization.

The Army Strategic Mobility Program cars are frequently called "circus" cars because equipment is driven onto many connected cars using ramps and spanners between the flat cars as equipment is moved forward.

THEATER RAIL RESPONSIBILITIES

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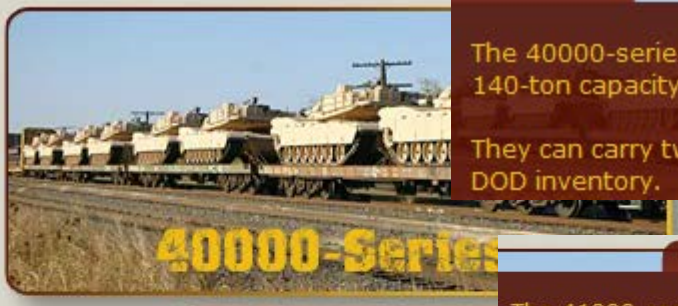
Theater Rail Operations

Flat Cars

Due to a lack of heavy-duty commercial Flat Cars capable of carrying M1A1 Abrams tanks, the Department of Defense (DoD) procured 566 140-ton (DODX 40000-series) Flat Cars in the late 1980s to provide the Army with the heavy lift it would need to support future contingency operations.

Then in the mid-1990s, DoD purchased DODX 41000 and 42000-series Flat Cars to provide the Army with a capability to respond more rapidly during crisis situations and contingencies.

This pool of DoD-owned Flat Cars will remain in service until after 2030 and could reduce the impact of any future shortage of commercial Flat Cars.



40000-Series

The 40000-series Flat Cars are 68 feet long and have a 140-ton capacity.

They can carry two of any heavy tracked vehicle in the DOD inventory.

41000-Series

The 41000-series Flat Cars are 68 feet long with a 92 to 107 ton capacity, depending on car design and track capacity.

They can carry one of any heavy tracked vehicle in the DoD inventory or any wheeled vehicle.

Their length and width make them ideally suited for carrying tractor-trailer combinations such as the Heavy Equipment Transporter (HET) or the Patriot Missile System.

42000-Series

The 42000-series Flat Cars are 89 feet long and have a capacity of 85 to 101 tons, depending on car design and track capacity.

They have steel decks, chain tie-downs, container fittings, and integrated spanners.

They were designed principally for carrying wheeled and light tracked vehicles.

This series is ideal for transporting various High Mobility Multipurpose Wheeled Vehicle (HMMWV) configurations, semitrailers, and similar trucks and wheeled vehicles.

These rail cars are 68 foot long, 140-ton Flat Cars built for the Department of Defense.

Blocks of DODX Flat Cars usually move long distances mixed into regular manifest freight trains, however, unit trains of armor are not unusual.

Armor is moved by rail between bases and practice ranges, or to ports of embarkation.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Conventional Flat Cars

The older Conventional Flat Cars have a wooden deck and are not equipped with chains.

They still serve as linkspans, or overhang carriers for oversized freight, such as pipes.

Although the bulk of Flat Cars used will be chain tie-down configured, some of these Conventional Flat Cars will be necessary, particularly if involved in a major contingency and large forces will be deployed.

These cars require the use of dunnage, blocking and bracing materials, wire rope, and are obviously, quite labor intensive.

Most older wooden decked Flat Cars are used today as "Idler" cars and serve as a linkspan when oversized freight, such as pipes that extend beyond the length of the car carrying them.

This protects the cargo ends from damage and ensures that the loaded cars don't bind, and damage the ends of adjacent cars.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Multi-level Flat Cars

The Multi-level Car or Autorack, is a long flatcar designed with one or more deck levels in addition to the car's main deck.

These tall, enclosed cars with swinging doors and ramps on either end allow a whole train to be loaded in one operation without switching of cars.

Originally intended to be used to haul new automobiles and trucks from automobile assembly plants to dealers, these Multi-level Cars have proved more than capable of transporting light weight military vehicles.

Some railroad freight cars are meant to handle one specific type of cargo.

The Autorack, used to transport automobiles or light trucks from the factory, is an example.

Vehicles are driven in from one end of the train and are stored on two or three levels of racks.

THEATER RAIL RESPONSIBILITIES

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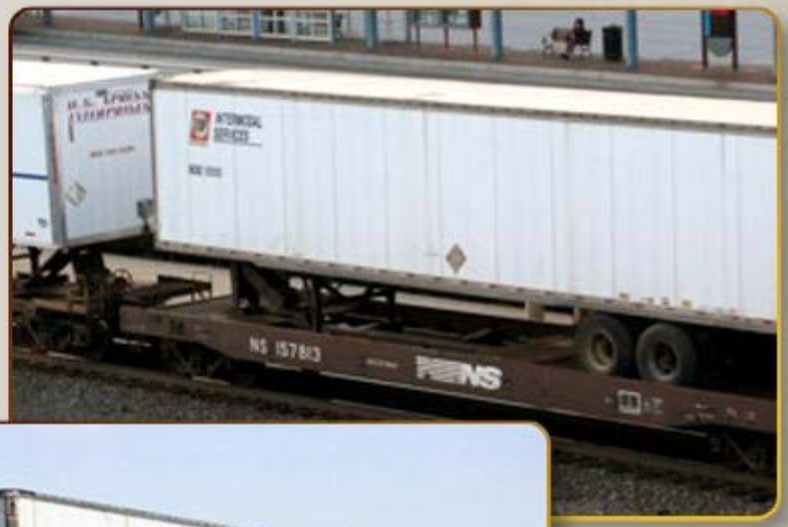
Theater Rail Operations

Trailer on Flat Car

Flat Cars that are specially equipped with permanently fitted "fifth wheels" can support two cargo trailers on a single Flat Car.

This configuration is referred to as the Trailer on Flat Car (TOFC).

Both commercial and military ports utilize this technique at adjacent railheads.



These specialty purpose Flat Cars began in the 1950s, when railroads began "piggyback" service by using Flat Cars to carry trailers to distant cities, where they were unloaded and hooked to a truck for a local trip.

This piggyback service has evolved into hauling container freight as a link in a three-part (or intermodal) transportation system, from ship to train to truck.

THEATER RAIL RESPONSIBILITIES

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Container on Flat Car

COFCs are rail cars in a "Container on Flat Car" configuration for carrying the ubiquitous and increasingly utilized commercial containers.

The deep wells inherent with these cars allow for containers to be held more securely and can be stacked two containers high.

They are typically 89 feet in length and can carry four 20-foot intermodal or International Organization for Standardization (ISO) containers, or two standard 40-foot shipping containers.

The Container on Flat Car is defined as an intermodal shipment that refers to the practice of moving highway containers from trucks onto specially designed rail cars for the long-haul portion of the total freight trip.

When carried by rail, containers can be loaded on Flat Cars or in container well cars.

THEATER RAIL RESPONSIBILITIES

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Theater Rail Operations

Switch Engines

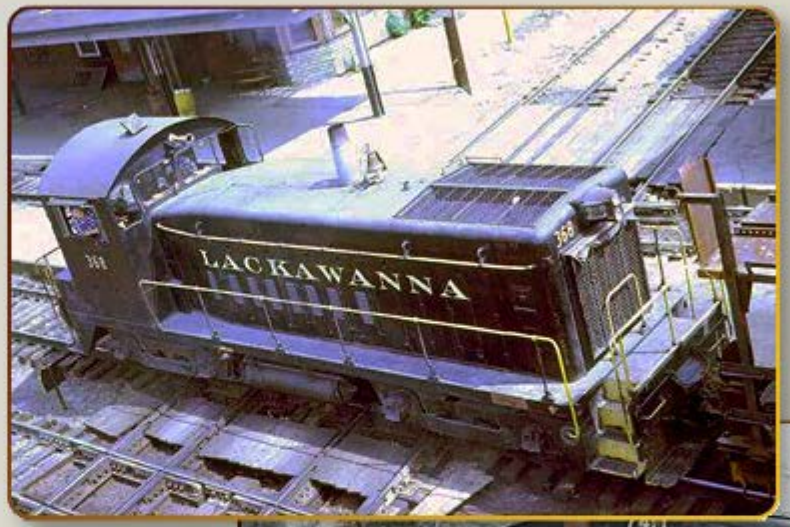
On most all military installations where there is some form of rail network, they utilize Switch Engines to move rail cars in and out of a loading area.

The typical Switch Engine is optimized for its job, being relatively low-powered, but geared for torque and traction for getting heavy cars rolling quickly.

Most CONUS installations are operated commercially, but during mobilization and deployment scenarios, these utility railroad civilians may be augmented by Soldiers.

Once cars are loaded with the unit equipment and vehicles, the Switch Engines will again move the cars to a switching yard and subsequent link-up with the commercial carrier.

Their cab and hood design profile allows for greater visibility in both directions.



The typical Switch Engine is optimized for its job, being relatively low-powered, but geared for torque and traction for getting heavy cars rolling quickly.

Occasionally, the term "Road Switcher" is used to describe a locomotive suitable for both switching and freight duties.

Almost all Switch Engines are diesel-electric locomotives.

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Line Haul Locomotives

Virtually all Line Haul Locomotives are diesel-electric. (Steam-powered locomotives may be encountered in austere theaters).

These are essentially an electric locomotive, powered by a diesel engine that is connected to a generator or alternator.

The electricity generated runs the traction motors that, in turn, power the axles.

These Line Haul Locomotives have the ability to connect a number of locomotives and control them (slave) from the cab of one unit.

This increases power and reduces labor costs.

Line Haul Locomotives, which perform the Line Haul operations, generally travel between distant locations, such as from one city to another.

Although diesel-electrics will be available and used in most parts of the world, steam locomotives may be encountered in some particularly austere theaters.

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Caboose

The Caboose is a freight-train car usually attached to the rear of a train for the use of trainmen in handling car records, giving and receiving signals, and performing other duties.

If a Guard or Passenger car is not furnished for Soldiers providing en-route security during a movement of military equipment, a Caboose may be used for that purpose.

Civilian domestic trains do not utilize a Caboose.

Although Cabooses were once used on nearly every freight train, their use has declined and they are seldom seen on trains, except on local and smaller railroads.

Some overseas rail operations may still employ a Caboose in their train's consist.

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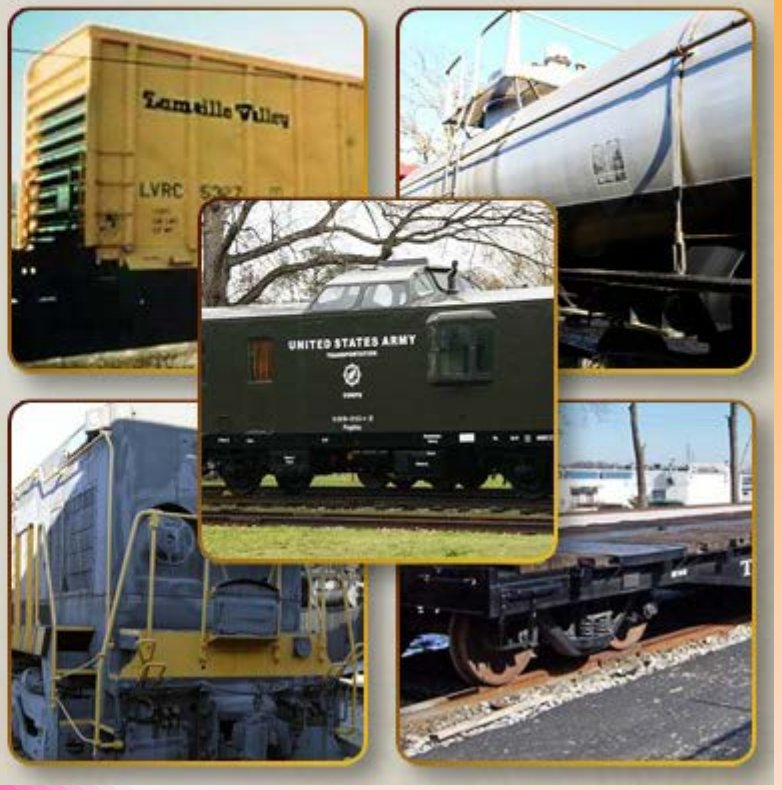
Key Points

KEY POINTS

The following key points on Rail Rolling Stock were discussed:

- Freight Rolling Stock
- The Defense Freight Rail Interchange Fleet (DFRIF)
- Specialty Cars
- The various freight cars
- Switch Engines
- Line Haul Locomotives

The following key points on Rail Rolling Stock were discussed: Freight Rolling Stock, the Defense Freight Rail Interchange Fleet, Specialty Cars, the various freight cars, Switch Engines, and Line Haul Locomotives.



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Quick Challenge

QUICK CHALLENGE

The Department of Defense has a prepositioned fleet of railcars, known as the Army Strategic Mobility Program (ASMP) fleet, and is made up of a variety of DODX flat cars.

What is the main function of the ASMP fleet? Select the best answer and then select Submit.

A. Being able to provide medical transport cars

✓ B. Being capable of transporting the full spectrum of Army wheeled/tracked vehicles

C. Augmentation of the commercial rail system

D. Meet surge requirements during a mobilization training exercise

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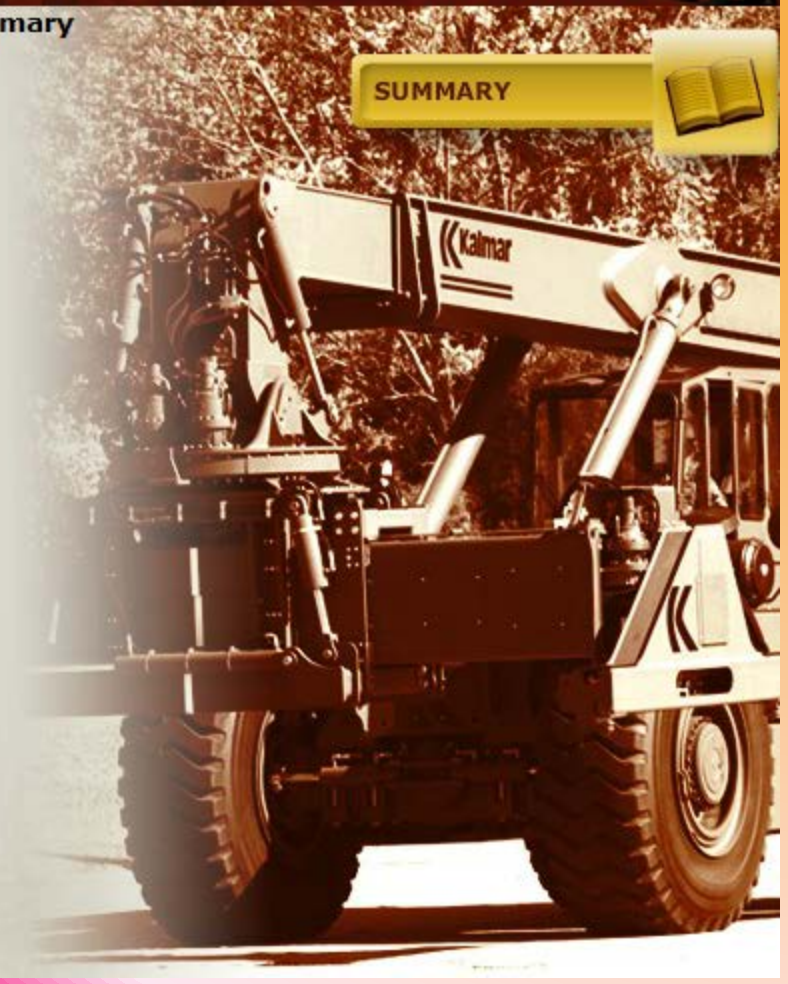
Summary

In this lesson, you have learned about the following:

- Primary Rail Functions
- Phases of Operation
- Host Nation Support
- Rail Operations Responsibilities
- Rail Loading Procedures
- Rail Rolling Stock



In this lesson, you have learned about: Primary Rail Functions, Phases of Operation, Host Nation Support, Rail Operations Responsibilities, Rail Loading Procedures, and Rail Rolling Stock.

Good luck on the assessment