

Chapter 3

Rail Operations in Low-Intensity Conflicts

Low-intensity conflict is a military struggle to achieve political, social, economic, or psychological objectives. It is often protracted and ranges from diplomatic, economic, and psychosocial pressures through terrorism and revolt. LIC is generally confined to a geographic area and is often characterized by constraints on the weaponry, tactics, and the level of violence. The US Army's mission in LIC can be divided into four general categories: peacekeeping operations, foreign internal defense, peacetime contingency operations, and terrorism counteraction. These general categories are not mutually exclusive, but often overlap.

ROLE OF THE RAIL UNIT

3-1. The rail unit monitors or provides technical assistance to the operation of the HN's railroad system. Rail unit's assistance may include providing resupply to US peacekeeping forces to the actual operation of the rail system to maintain the credibility of the host government.

UNCONVENTIONAL OPERATIONS

3-2. Unconventional operations are predominately of a military nature and are characterized by extensive use of unorthodox tactics conducted by irregular forces. The most potent weapon of this type force is surprise. Rail personnel, especially train crews and those at outlying points, must stay alert at all times in case of an attack. Rail personnel at small stations, yards, enginehouses, and maintenance of way detachments along the line of road must also stay alert.

SABOTAGE

3-3. Constant vigilance is necessary to prevent or reduce sabotage. Sabotage is any willful act intended to aid the enemy by destroying, impeding, or interrupting any person or function. Some acts of sabotage include placing sand in car journal boxes, water in fuel tanks, or bolts in a machine gearbox. Identifying acts of sabotage are not as easy as unconventional operations, but the effects are the same. These acts are done secretly making them more difficult to prevent. Inspect trains frequently for concealed saboteurs or guerrillas who may cut air hoses or train lines to force an emergency stop where guerrillas wait to attack. If tonnage can be handled with locomotive brakes only, operating trains without air brakes rules out this type of sabotage.

OBJECTIVES

3-4. Level I and II threat operations (see FM 100-20) most commonly use fire and explosives against railway lines and installations to disrupt train traffic. Conduct threat operations to perform the following:

- Destroy bridges and tunnels.
- Destroy track (derailments and wrecks).
- Destroy buildings, shops, and terminal facilities.
- Destroy communication and power lines.
- Destroy locomotives and rolling stock.
- Capture and/or destroy equipment and supplies.
- Capture weapons and ammunition. Weapons and ammunition are especially critical items and are primary objectives. They must be either in the hands of using personnel or properly secured at all times.
- Capture personnel and/or inflict personnel casualties.

DEFENSE MEASURES

3-5. Military planning includes the possibility of frequent and continuing military actions of special warfare occurring during LIC. This chapter outlines some of the conditions which may be encountered and some of the methods that the rail personnel may adopt to counter the tactics irregular forces design to wreck trains or delay train movements. The type of defense that may be used varies with local conditions, degree of isolation, proximity of other troops, and so forth. Experience shows that aggressive attacks can cause considerable damage despite apparently foolproof security measures. Trip wires, sentry dogs, barbed wire, land mines, and similar measures give some protection against surprise.

GUIDELINES

3-6. Guidelines differ depending on the circumstances of the attack and the geographical area in which it occurs. Hard and fast rules cannot be made. Whenever unconventional forces attempt to derail or wreck a train, rail operating and maintenance personnel must attempt to forestall it by suitable countermeasure.

PLANS

3-7. Any counter plan must consider the mentality of the enemy, the changing physical characteristics of the particular line, and the terrain. Plans must always be flexible and changed frequently as conditions warrant.

ATTACKS ON THE RIGHT-OF-WAY

3-8. Irregular forces, possessing a minimum of arms and explosives, may concentrate their efforts on train derailing and wrecking. In many instances, their primary goal may be stealing and pilfering supplies and ammunition after a wreck occurs. Delay may be secondary, but both goals may be accomplished simultaneously. To wreck trains, action must be directed against the track, switches, ballast, and bridges along the right-of-way.

TRACK

3-9. Tampering with the track and fastenings is the simplest way to cause a derailment. Removing enough spikes from rails will cause them to spread under the weight of a locomotive or buffer cars. Removing nuts and bolts from the joint bars is another method of causing rails to spread. Continuous welded rail lessens the danger of rails spreading, but it is doubtful that this type of rail will be found in many undeveloped areas. Ordinary track tools are enough to pull spikes and loosen joint bars. To make the work of the saboteur more difficult, joint bars have sometimes been welded into place and track spikes have been tack-welded to the rails. The consistent denial of track tools to the irregular forces is the first step to be taken. Tools are removed from the large toolboxes normally spaced along the right-of-way for worker convenience. Track tools should be safeguarded more zealously than their monetary or salvageable value warrants.

ROADBED

3-10. Unless the opposing forces have large stores of explosives or the tools and ability to make improvised mines and bombs, extensive damage to ballast and subballast will probably not be attempted. Crews should be alert for mines and bombs when rounding sharp curves or at the bottom of steep grades where stopping in short distances may be difficult. The absence of a quantity of ballast or dirt is not an easy condition to detect until the observers are quite close to the spot. Crews should be watchful for any piles of scattered ballast or dirt along the track in areas where they would not normally be found.

TRACK BARRICADES

3-11. Barricades thrown across the track may serve many purposes. Small, poorly armed bands may drop trees across the track to bring trains to a halt. Generally, when train guards are superior in number and arms, guerrillas will disperse and leave the crew to remove the blockade. In undeveloped countries, unconventional forces and terrorists block the track with anything available. They will often leave false evidence that the barricade has been boobytrapped. This makes removal much slower than usual. Guards must be constantly alert and careful because the terrorists leave the same evidence at barricades that they did not boobytrap.

RIGHT-OF-WAY CONCEALMENT

3-12. In areas where sniping is common or where heavy small arms fire is experienced or expected, brush and green growth along the right-of-way should be cut back as far as practicable (at least 20 feet on each side). Use chemicals to kill jungle growth that serves as enemy concealment. Concealment is also important to small working groups. Where action is light and confined to sniping and trains are carrying guards or troops, it may be desirable to try to trap the guerrillas.

BRIDGES

3-13. Bridges and trestles are naturally vulnerable. Until repaired, their destruction can stop all movement. Irregular forces may not be interested in total destruction of such important rail facilities. Their primary mission may be to delay, pillage, and try to prevent certain types of cargo from reaching their destination. These same trains may be carrying freight important to their ultimate goal or cause. The average political or military group of a country with a limited rail network, wants to achieve its goal without destroying transportation facilities.

3-14. Bridges and high embankments are excellent points for train wrecking and derailing. Bridges often span rivers and deep ravines. Therefore, efforts are often made to derail trains near these points in the hope that part of the train will topple to the ground or into the river below. It may prove profitable to keep guard forces in areas where simple derailments may have serious results.

3-15. Rail lines running through deep rock cuts offer good targets. The lack of operating space along the sheer cliffs makes cleaning up a wreck slow and extremely difficult.

3-16. There is a great possibility of a derailment where there are many bridges and high embankments. The engineman must be prepared to stop immediately upon derailment. One method that has been tried is mounting a white disk on each corner of the foremost buffer car. The engineer watches the disks constantly for any noticeable movement. Movement denotes a derailment and brakes are applied promptly. Another method is one that causes the brakes to be applied, independent of the engineman's actions, as soon as a derailment occurs. A method of doing this is to bring the brake pipe down to the wheels, 2 or 3 inches above the rails, with a glass tube installed in the line. When the wheels of the leading car leave the track, the glass tube drops down and breaks and the air brakes are applied.

WAYSIDE COMMUNICATIONS FACILITIES

3-17. Telephone and utility poles and lines are often targets for disrupting communications. Since these facilities are easily sabotaged, it may not be practical to keep these LOC open. If radio communication is not available, trains can be dispatched with reasonable safety and expediency by using manual block operations. Where an attempt is made to keep lines open, enemy forces can often cut wire faster than breaks can be repaired. Cuts may also be made for the sole purpose of attacking repair crews for their tools and weapons when they arrive to repair breaks. Armed escorts should usually accompany repair personnel.

WAYSIDE SIGNALS

3-18. Wayside signals are in the same category as communications when it comes to tampering. Guerrillas can switch electrical leads and cause a signal to display a false aspect. The displayed aspect on main-track switch lights should not be depended on completely. It is a relatively simple matter to turn the lamp or to reverse the roundels and display false aspects. Switch points should always be observed to make sure that they agree with the aspect displayed. It is doubtful whether electric signals should be relied on by the rail unit in guerrilla-infested territory.

HAND SIGNALS

3-19. Railroad crews moving along a main track are always on the alert for hand signals displayed on the track ahead. Open stations will display "stop" or "proceed" signals depending on whether or not the station has any orders or instructions for the crew. When operating in adverse territory, hand signals observed between stations are regarded with suspicion. A red flare or fuse waved violently across the track is a universal stop signal. Opposing forces in possession of fuses and red lanterns can stop trains with little effort. The only countermeasure to use against unauthorized signals is to specify the exact manner in which a signal is to be given. The average nonrailroader usually holds a fuse at arm's length and waves it over his head in a half circle. A railroader usually swings it across his knees in a lower half-circle. There are many signaling combinations that can be worked out. They should be classified, coded, and changed daily or as necessary.

FALSE REPORTING

3-20. Because trains must be reported by each station they pass, precautions must be taken against guerrillas cutting in on a dispatcher's telephone circuit and reporting false information. Although the dispatcher may know and can recognize all voices of his division, he must always call a station back and verify the report. Such tactics can be overcome by using approved CEOI. COMSEC procedures should be used at all times.

TRAIN OPERATIONS

3-21. Operations over a division experiencing frequent disruption of supply and passenger transport must change with the aims and tactics of the opposing forces. Trains should be operated at irregular intervals. 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. At night, frequent roving patrols or armored trains should move over the lines at irregular intervals to prevent sabotage to tracks and structures. If irregular forces know when to expect trains, they can operate effectively against railroads with very little interruption. In a conventional war, the operation of passenger trains continues for military use but usually diminishes for civilian use if it can be done without disrupting the economy.

PRECAUTIONS

3-22. Depending on the tactics and goals of the aggressors, special precautions must be taken for passenger train operations. Where irregular forces are well organized and well armed, countermeasures must be similar to those used in conventional warfare. If passenger trains are kept in operation, it may be necessary to install steel plates over the windows and pile sandbags up to the bottom of the windows. Cover windows with steel-meshed wire to prevent grenades from being thrown into the cars. Doors are closed and secured to prevent guerrillas from boarding. When tracks are torn up or bridges blown, the train should back away if time and conditions permit. When enough motive power is available, a locomotive operated at the rear of the train is used to pull undamaged portions of the train back to safety if the locomotive or cars at the front end are derailed. Troop trains may carry a supply of ammunition and grenades for the crew and passengers to use in case of attack. Locomotives and train guard cars will be equipped with fire extinguishers and first aid kits. The security objective is to save personnel and equipment from capture, damage, or destruction.

PILOT AND INSPECTION TRAINS

3-23. Conditions may require the operation of a pilot train to travel over a section of track a short time ahead of a following train. This train may be operated as a pilot train, as an escort to a troop or supply train, or as a security patrol train to prevent sabotage. A pilot train running interference for a troop or supply train moves ahead as short a distance as is feasible, safe, and consistent with operating conditions. The pilot train will move 2 to 5 minutes ahead of the second train. After the pilot train passes, the guerrillas do not have enough time to obstruct the track, remove a rail, spike a switch, and so forth, before the train they seek to derail has passed. A pilot train may consist of any combination of rolling stock. For night operations, the lead car can be rigged with a headlight powered from the locomotive generator. This car may be partially armored with boiler-plate steel and carry a small machine gun or rifle crew for protection against small guerrilla groups or wayside snipers. Additional cars, similarly equipped and manned, may be pulled behind, carrying enough troops or guards for protection against attacks on the train if it is stopped. Depending on the firepower of the opposing forces, armor plates may be installed on the locomotive to protect the cab crew. Plating may also be necessary to cover key auxiliaries on steamers and along the power plant area of diesels. These trains could be quite heavy. The locomotive may also have two cars attached to the front. These cars should be heavily loaded with anything that provides enough weight to explode a buried mine or to test the stability of the track by derailling before the locomotive reaches the spot. If the pilot train can safely pass over a given track section, an ordinary train should

also be able to safely pass. It would be useless to have individual (light) engines act as pilot trains. They might safely pass over a track that had been tampered with, but a train of more weight would be derailed. If time delayed or remote controlled mines are used, then patrols must be increased to deny the opposing forces the opportunity of employment.

EMERGENCY SUPPLIES AND EQUIPMENT

3-24. Aside from necessary weapons and first aid equipment, equip locomotives with a full set of track tools in addition to those normally carried for emergency repairs. Track fastenings, spikes, jacks, sledges, crowbars, and even a limited number of ties and rails may be needed. Engine and train crews and security guards aboard trains should have flare pistols for firing signals to indicate unauthorized stopping or attack. Train crews, security guards, and patrols may be furnished portable telephones that can be hooked to wire lines along the track to report attacks, derailments, location of interruptions, and similar information. Where the equipment is available and weather conditions permit, railway personnel and guards may be equipped with radio-telephones for similar purposes and communication between enginemen and train crews at the rear. DO NOT place cars containing explosives or flammable materials next to locomotives or cars containing troops or guards. Fire directed toward personnel might explode or set fire to the hazardous material.

ARMORED TRAINS AND CARS

3-25. The tempo may change from sniping, wrecking, and pilfering to organized attack with heavy firepower when enemy forces and irregulars increase and possess large stores of ammunitions and explosives. Heavier armor may have to be installed on the pilot trains. Crude, improvised gondolas with mounted guns may change to armored tank-like structures mounted on flatcars. These can often be made by using 1/2-inch plates. Firing slots may be provided and revolving searchlights fitted into the roofs.

ARMORED TRAINS

3-26. Armored trains may consist of specially armored cars, flatcars, or gondolas with tanks secured to them. Tanks are particularly effective because their moveable turrets and large caliber guns give long-range protection in all directions. When equipped with flame-throwing devices, tanks are very effective in searing growth that may be used as hiding places along the right-of-way. Boilerplate steel boxes or turrets installed on flatcars provide armor for troops and gun crews inside. These turrets may rotate and be rigged with firing slots, gun ports, and swivel lights. Reinforce locomotive cabs with armor plate thick enough to withstand machine gun and rifle fire. Cover locomotive windows with steel shutters to protect enginemen, but permit visibility.

SELF-PROPELLED CARS

3-27. Self-propelled armored railcars may be used for piloting and patrolling. They can be used in pairs so that one may assist the other in the event of attack or derailment. They are relatively light and easily re-railed by light cranes or rerailers. They can also be moved to the side of the right-of-way when seriously disabled. The short time required to clear a line of these lightweight cars, after a derailment, is lower than when locomotives have been derailed. When self-propelled cars are wrecked and left unguarded, the guns (or at least the breech locks) must be removed. In some areas where an undeclared war is being fought, local government militia or constabulary may be taught to operate self-propelled track equipment. However, they must first be given detailed instructions about the rules of the road. Like all other rail operating personnel, they must be given periodic examinations and refresher instructions.

DERAIL DETECTION DEVICES

3-28. Unconventional forces may rig the track with an explosive device and permit an armored or pilot train to pass unharmed in the hope of wrecking the more valuable train. One or two idler cars, which may or may not be armed and equipped as described above, should be pushed in front of the locomotive. The derailment of the leading car warns the engine crew and often permits counteraction. The leading truck can be equipped with a spring-plunger device that starts automatic brake application in case of derailment.

COUNTERMEASURES

3-29. With extensive unconventional operations, precautions and countermeasures against attacks on rail facilities may be only partially successful. Such operations may reach such proportions that the only practical defense would be to expel them from the area.

COUNTERGUERRILLA

3-30. Counterguerrilla tactical operations may be necessary. Denial of food and supplies, occupation of areas harboring and assisting them, and even the resettlement of communities to fortified centers may be required. HN employees around shops and terminals who could sabotage equipment should be carefully screened.

DECEPTION

3-31. Two forms of deception are used when deceiving the enemy. The first is deceiving the enemy about our intention. The second is preventing the enemy from obtaining intelligence. A number of methods may be used to deny the enemy intelligence.

Camouflage and Concealment

3-32. Make camouflage loads appear to be non-military. Break the pattern of loads through the use of netting.

Smoke

3-33. Smoke may be used to obscure the enemy's vision. However, it should not obscure the visibility of the train crew. Only use smoke when everything else has failed. When possible, conduct rail operations during periods of darkness or fog to further reduce enemy observation.

Schedule Departures and Arrivals

3-34. To the greatest extent possible, do not use schedules in railway transport. An established routine would give the enemy an added advantage. Schedule and departure times should also be encoded for transmission and the minimum number of personnel allowed access to this information.

Routing

3-35. If possible, and if parallel lines exist, vary the routes that trains will operate in the theater. There should not be any set pattern that the enemy may use to their advantage.

OPERATIONS IN AN NBC ENVIRONMENT

3-36. Conduct train operations in an NBC environment according to doctrine in FM 3-100. Conduct NBC operations the same as in other type units with the exception of operations that will be degraded from a personnel standpoint rather than from an equipment standpoint. Toxic chemicals have little effect on motive power and rolling stock. However, nuclear detonation, depending on its proximity, might detail motive and rolling stock and damage equipment components (such as brake hoses and communication equipment).

3-37. Equipment being transported by rail may have to be decontaminated. Decontamination depends on whether the equipment is being transported in closed or open-topped railcars. This decontamination will have to be done at the nearest yard or loading facility. Due to the size of the equipment being used, perform decontamination by spraying the railcars with water (see FM 3-5).

3-38. Train crews must don protective gear and stay under cover of the locomotive cab during train operations under NBC attack or when crossing a contaminated area.

REAR OPERATIONS

3-39. Rear operations assist in providing freedom of action and continuity of operations, logistics, and battle command. Their primary purposes are to sustain the current close and deep fights and to posture the force for future operations. Rear operations can be the targets of the enemy's deep attack.

General Protective Measures

3-40. Security measures of railroad operations are determined by the situation and AO. These measures may include the following:

- Route reconnaissance by Army aircraft.
- Occupation of critical terrain features.
- Using special observation cars.
- Placing the locomotive at the midsection of the train to reduce damage in the event of sabotage.
- Using two or three gondola cars (filled with rock, sand, or other ballast) in front of the engine to absorb mine detonation effects.
- Using empty and decoy trains to be ahead of critical shipments.
- Using escort or scout trains to patrol right-of-way.
- Using special armored guard cars.
- Placing mobile maintenance trains in strategic locations along the route or moving with trains.
- Movement at the highest safe speed through areas where guerrilla or partisan forces are active.
- Consolidating trains to ensure the most economical use of available air cover.
- Placing security patrols along the length of the line to be traversed.

Rear Area Operations Center

3-41. An RAOC is provided each support group and brigade within the theater of operations. The RAOC keeps the commander informed of the RAS, the ADC situation in his area, and the resources available to cope with emergencies. It represents the planning capability of the commander and performs command and control over forces designed to execute RAP missions. As rail elements will be located within or moving through the RAOC's areas of responsibility, rail units will normally have communications with and maintain plans in support of RAOC activities.

3-42. Rail units maintain communications with supporting RAOCs through the area communications system. The RAOC provides these units with current information on the following:

- Security force, artillery, and aviation support.
- Weather, terrain, and intelligence data.
- Location and level of chemical, biological, or radiological contamination.
- ADC and explosive ordnance disposal support.
- Medical, emergency repair, and other support facilities.

Those American forces operating within NATO will comply with the procedures as set forth in AMovP2.