APPENDIX B

PUBLICATION EXTRACTS

	Page
DOD Reg 4500.32-R, Volume I, March 1987	118
FM 5-36, March 1985	119
FM 55-30, August 1980	127

Use the above publication extracts to take this subcourse. At the time this subcourse was written, these were the most current publications. In your own work situation, always refer to the latest publications.

SPECIAL HANDLING CODES

TYPE OF COMMODITY	Single Handling Condition (a)	Mixed Handling Requirements (column a plus b, c or d) Heavy Lift (HL) (b)	Outsize Dimensions (OD) (c)	HL and OD (d)
Not to be assigned	1	-	-	-
Classified	2	B	K	S
Reserved	3	C	L	T
Protected (sensitive)	4	D	M	U
Protected (pilferable)	5	E	N	V
Protected (controlled)	6	F	O	W
Unassigned	7	G	P	X
Unassigned	8	H	Q	Y
No special handling required, except as indicated by I, R or Z	9	I	R	Z

NOTES:

1. Appendix A contains definitions of classified and protected (sensitive pilferable and controlled) cargo.

2. Heavy lift (HL). Five short tons (10,000 lbs) or more. Applies to any piece, packaged, palletized, unitized or containerized (excluding SEAVANs and MILVANs).

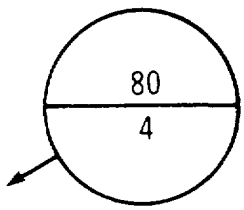
3. Outsize dimensions (OD). Length, width or height exceeds six feet for any piece, packaged, palletized, unitized or containerized (excluding SEAVANs, MILVANs, CONEXs, POVs). Use DIC T_5 trailer card/line entry to indicate actual dimensions in inches.

FIGURE B-2

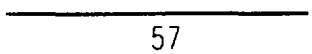
B-24

FM 5-36

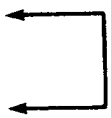
OVERLAY SYMBOLS



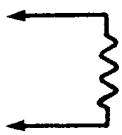
Abbreviated bridge symbol. Use this symbol only when map scale does not permit use of the full NATO bridge symbol. If this symbol is used, DA Form 1249 (Bridge Reconnaissance Report) must be submitted. Draw arrow to map location of bridge. Show bridge serial number in lower portion of symbol and military load classification for single-flow traffic in upper portion. If there are separate load classifications for tracked or wheeled vehicles, show the lesser classification. Underline classification number if width of overhead clearance is below minimum standard.



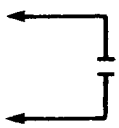
Axial route. Use a solid line and identify the route by an odd number.



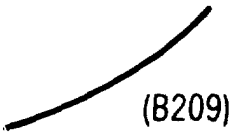
Bypass easy. Use when the obstacle can be crossed in the immediate vicinity by a US 2 ½-ton truck (or NATO equivalent) without work to improve the bypass.



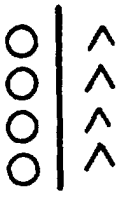
Bypass difficult. Use when the obstacle can be crossed in the immediate vicinity, but some work to improve the bypass is necessary.



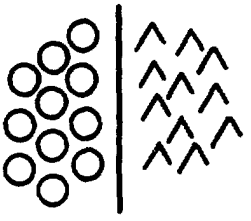
Bypass impossible. Use when the obstacle can be crossed only by repairing or constructing a feature, or by detouring around the obstacle.



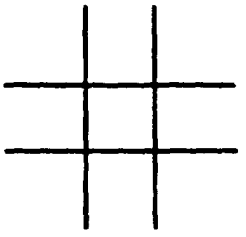
Civil or military route designation. Write the designation in parentheses along the route.



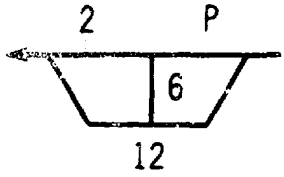
Concealment. Show roads lined with trees by a single line of circles for deciduous trees and a single line of inverted Vs for evergreen trees. Show woods bordering a road by several rows of circles for deciduous trees and several rows of inverted Vs for evergreen trees.



Critical points. Number, in order, and describe critical points on DA Form 1711-R. Use critical points to show features not adequately covered by other symbols on the overlay.

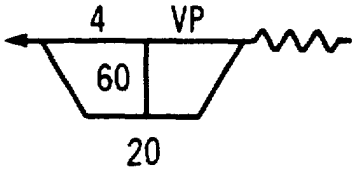


Damage or destruction.

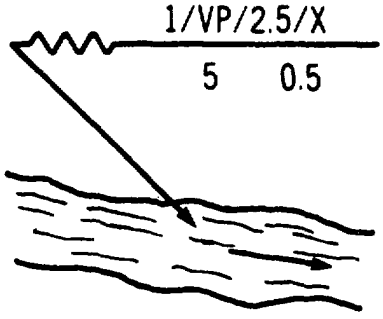


Ferry. Draw arrow to the map location of the ferry. The data above the symbol shows, in order, the left approach, ferry serial number, ferry type, and right approach. The data inside the symbol shows, from left to right, the military load classification and the dead weight capacity in tons. The number below the symbol shows the turnaround time in minutes. A question mark indicates unknown information. Difficult approaches are shown by zigzag lines, and easy approaches are shown by a straight line.

Ferry type—V - vehicular, P - pedestrian



Ford. Draw arrow to the ford location. The data above the line shows, in order, the left bank approach, the ford serial number, ford type, stream velocity (in meters per second), seasonal limitations, and right bank approach. The left and right banks are determined by looking downstream. The data below the line shows, in order, length, width, bottom type, and depth. All measurements are in meters. Question marks indicate unknown information.



Ford type— V - vehicular, P - pedestrian

Seasonal limiting factors—

X-no seasonal limitations except for limited duration after sudden flooding

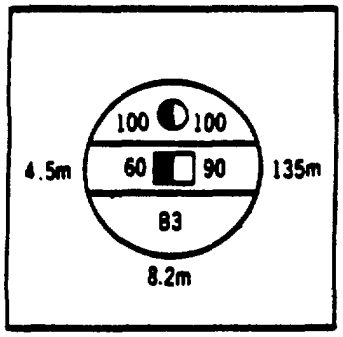
Y-significant seasonal limitations

Bottom type—M - mud
C - clay
S - sand
G - gravel
R - rock
P - artificial paving

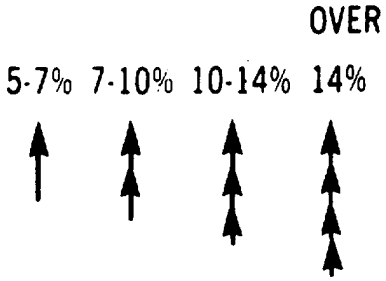
Approach conditions—

Difficult

Easy

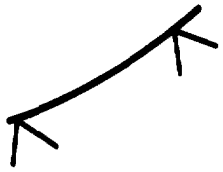


Full NATO bridge symbol. Indicate wheeled vehicles in the upper third of the symbol with the two-way wheeled classification at the left and the one-way wheeled classification at the right. Show tracked vehicles in the center third of the symbol with the two-way tracked classification at the left and the one-way tracked classification at the right. Place the bridge serial number in the lower third of the symbol. Draw the arrow to the location of the bridge and show bypass conditions on the arrow shaft. Place traveled way width below the symbol, overhead clearance to the left of the symbol, and overall length to the right of the symbol.



Grades. Show the actual percent of grade. Any grade of 7 percent or more is an obstruction and is included in the route classification formula. Arrows point uphill, and the length of the arrow represents the length of grade if the map scale permits.

Lateral route. Use a broken line and identify the route by an even number.

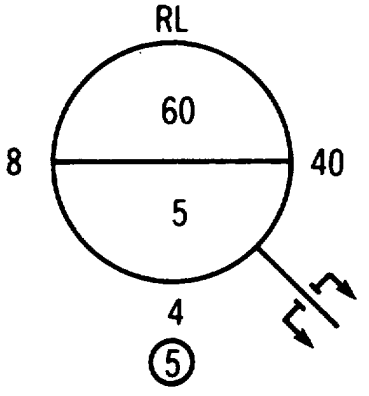


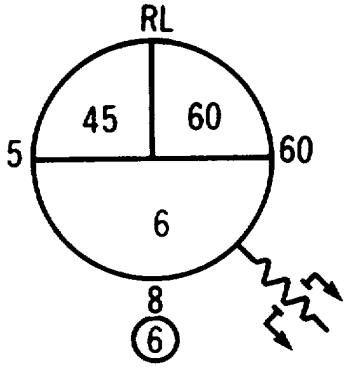
Limits of sector. Show the beginning and ending of a reconnoitered section of a route or road with this symbol.

Obstacles. Place the center of the symbol over the location of the blocked part of the route. Use parallel broken lines for a proposed block, parallel lines for a prepared but passable block, and crossed lines for a completed block.

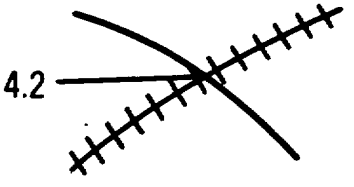
Overhead clearance unlimited.

Parking area.





Railway bridge symbol. Place RL above the symbol to indicate a railway bridge. At the left of the symbol, show the overhead clearance. Show the overall length of the bridge at the right of the symbol. Indicate the traveled way width below the symbol and underline it if it is below standard for the classification. Inside the symbol, show the bridge classification in the upper half. If the class is different for single- and double-flow traffic, show single flow on the left and double flow on the right. Place the railway bridge serial number in the lower half of the symbol. Draw an arrow to the map location of the bridge. On the arrow shaft, indicate the ease of adapting the bridge for road vehicle use. A zigzag line means it would be difficult to adapt, and a straight line means it would be easy to adapt. Place the bypass symbol on the arrow shaft to indicate bypass conditions.



Railroad grade crossing. Use this symbol to show a level crossing where passing trains would interrupt traffic flow. If there is a power line present, show its height, in meters, from the ground. Underline the overhead clearance if it is less than 4.3 meters.

10.5 m/X/120/00
6 m/Z/30/4.1 m/(OB)
9 m/V/40/5 m/(OB) (W)

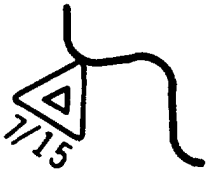
Route classification formula. Express the formula in the order of route width, route type, military load classification, minimum overhead clearance, obstructions, if present, and special conditions.

Route types—

X - all-weather route
Y - limited all-weather route
Z - fair-weather route

Special conditions—

(T) regular snow blockage
(W) regular flooding

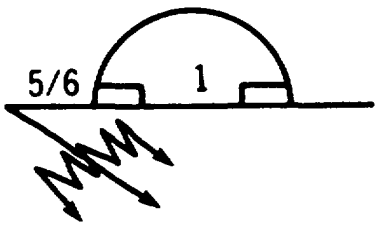


Series of sharp curves. Point the vertex of the triangle at the first curve in the series. Indicate the number of curves in the series (left) and the radius of the sharpest curve (right).

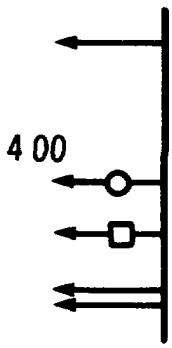
Sharp curve. Point the vertex of triangle to map location of curve and indicate the radius of the curve, in meters, outside the triangle. A curve of 45 meters or less must be reported on the overlay, and a curve of 25 meters or less is an obstruction.

Traffic control headquarters.

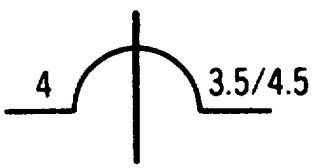
Traffic control post.

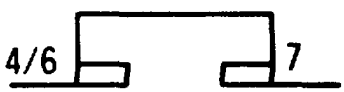


Tunnel. Draw arrow to map location of tunnel. Place bypass condition symbol on arrow. Show minimum and maximum overhead clearances to the left of the symbol, the tunnel serial number inside the symbol, and the total tunnel length to the right of the symbol. Below the symbol, show the traveled way width. If sidewalks are present, follow with a slash and the total traveled way, including sidewalks. Underline the traveled way if the road entering the tunnel is wider than the traveled way of the tunnel. Use a question mark to show unknown information.



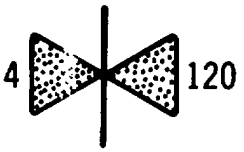
Turnout. Use this symbol to show the possibility of driving off the road. Draw the arrow in the direction of the turnout (right or left of road). For wheeled vehicles, draw a small circle on the shaft of the arrow. For tracked vehicles, draw a small square on the shaft of the arrow and place the length of the turnout, in meters, at the tip of the arrow. When a turnout is longer than 1 kilometer, use double arrows.





Underpass constrictions. Draw the symbol over the road. Place the width of the traveled way, in meters, to the left of the symbol. If sidewalks are present, follow the traveled way width with a slash and the total width, including sidewalks. Underline the traveled way width if the road entering the underpass is wider than the underpass traveled way. Show the overhead clearance, in meters, to the right of the symbol. Show both minimum and maximum overhead clearances, if different.

Unknown or doubtful information.



Width constriction. The number at the left shows the narrowest width of the constriction, and the one at the right is the total constricted length. Both dimensions are in meters.

APPENDIX K

SAMPLE OPERATIONS ORDER FOR A LOGISTICAL MOTOR TRANSPORT MOVEMENT

This sample operations order is provided for guidance to personnel responsible for planning convoy operations. Since the situation presented is fictitious, the instructions will not be applicable to all motor movements.

When truck units operate in an area for extended periods, the amount of information and instructions included in an operations order can be substantially reduced by making reference to SOP's and other documents available to personnel in the operating units.

SOP's must be prepared and personnel trained in their content covering much of the detail that is in this order.

CLASSIFICATION

_____Transport Battalion (MT)
(location)

Serial No. _____ 79

Operations Order _____ 79

References: (a) Maps: (List map sheets used).
(b)_____Transportation Group (Motor Transport) Admin, Order 22-67, Annex D.
(c)_____Transportation Battalion (MT) SOP Annex A.

Time Zone:

Convoy Organization: SEE ANNEX A

SITUATION

Enemy Forces/Capabilities - The enemy capability to conduct road interdiction through mining and demolition generally along the entire route is acknowledged. However, it is anticipated that the enemy will limit their road and bridge destruction to the extent consistent with meeting specific military objectives in ambush attack operations against selected convoys in order to preserve main LOC's for their own future use. The enemy's capability to conduct simultaneous and multiple convoy ambush operations at critical areas exists. However, this is unlikely because of the restriction on the number of military convoys that are moving at one time.

Friendly Forces -

- Reference (b)
- NATO forces provide traffic control assistance at bridge sites, crossings, and city complexes; provide military assistance in the event of enemy attack; provide limited artillery support.
- _____ provides aerial observation aircraft and convoy cover; provides close air support; provides emergency resupply and evacuation aircraft as required; provides helicopter for assistant convoy commander.
- _____ provides artillery support as required.
- _____ Engineer Battalion provides engineer support as required.
- _____ provides medical support.
- _____ provides convoy security force: FO, FAC, and tactical force.

MISSION - _____ Transportation Company (Trk) transports approximately 25 STON class V supplies and 75 STON of class I supplies from _____ to _____ by logistical convoy (annex K).

EXECUTION - Concepts of Operations - On "D" Day, - _____ Transportation Company will transport 100 STON of supplies from _____ to _____ by logistical convoy. On _____, this unit will return from (destination) to _____. Convoy will have 50 task vehicles with necessary support and control vehicles. Armored escorts will be provided as well as supporting arms for convoy protection. All protective measures will be taken to insure arrival of the convoy. The following security conditions will prevail:

- One tank platoon as convoy security.
- Aerial observer will be aloft over the convoy.
- Two AH-1G gunships will be in the air.
- Assistant convoy commander will be aloft over the convoy.
- FO and FAC will accompany the convoy.
- Pre-positioned artillery liaison personnel will be at NATO artillery positions along Route _____. Reconnaissance by fire will take place on critical points along the route by supporting artillery and attack helicopter units.

Convoy Organization (annex B).

Route (ref B).

Route Checkpoints (annex D).

Conduct of March (annex E).

Defense Plan (annex E).

Maintenance Procedures (annex F).

Coordinating Instructions.

- D Day: _____.
- Date/time and instructions for staging, departure, and return will be announced by this headquarters.
- Staging area location will be announced by this headquarters.
- All equipment will be prepared by the parent unit. Report deficiencies to this headquarters (S-3).
- Convoy clearance will be obtained by the convoy commander.
- Convoy commander will coordinate his plan of march with all elements of the security force prior to departure.
- This headquarters will coordinate loading of material to be transported (annex K).
- Checkpoints are indicated in annex D. The convoy commander or his designated representative will report convoy location as the convoy enters and clears each specific checkpoint. Report convoy location if stopped for any reason using checkpoints as reference points. Report departure/arrival at SP and RP when occurring.
- SP - Checkpoint _____.
- RP - To be announced.
- Marker panels will be placed on top of control vehicles in accordance with reference (b).
- Destroy vehicles and equipment only when authorized by the convoy commander.
- Convoy commanders will follow annex A to battalion SOP in convoy operations unless otherwise directed by competent authority.
- Critical point will be designed on strip maps and issued to all drivers.

ADMINISTRATION AND LOGISTICS

Supply Source: Normal

Class I - prescribed load

- Two days' C-rations will be carried by all personnel.
- Two full canteens of water will be carried by all personnel.
- One 5-gallon can of water will be carried for every two vehicles.

Class II - prescribed load NA.

Class III - prescribed load.

- Vehicle tanks will be full.

- One 5-gallon can of gas or diesel fuel will be carried on each vehicle.
- Fuel points along the route and at destination will be indicated on strip maps.

Class V - prescribed load.

- 100 rounds for each M16 rifle; 20 rounds for each .45 caliber pistol; 600 rounds for each M60; 1,000 rounds for each .50 caliber machinegun.
- All convoy control elements will carry two each of red, yellow, and green smoke grenades.

Maintenance - performed by using unit before staging. En route maintenance (annex F).

Medical - casualties will be evacuated by aerial medevac to the nearest medical facility (annex H).

COMMAND AND COMMUNICATIONS

Command - See annex A (Task Organization).

Operational control - North of Checkpoint No. 12, _____ Inf Div; south of Checkpoint No. 12, _____ Inf Div.

Communications-Electronics - See annex G.

All radio nets will be opened and checked one-half hour prior to the scheduled departure time.

Radio transmissions will be restricted to that necessary to maintain control over the convoy.

ACKNOWLEDGE

SMITH
Lieutenant Colonel

CLASSIFICATION

_____ Transportation Battalion (MT)
(location)

Serial No. _____ 79

ANNEX A Convoy Organization (Personnel) to Operations Order _____ 79

Time Zone _____

Convoy Commander _____

Assistant Convoy Commander _____

Pace Setter _____

First Serial Commander _____

Second Serial Commander _____

Trail Officer _____

Trail Maintenance _____

NCOIC Landing and Staging _____

OIC Security at Staging Area _____

SMITH
Lieutenant Colonel

DISTRIBUTION: Annex N to Operations Order _____79

CLASSIFICATION

_____Transportation Battalion (MT)
(location)

Serial No. _____79

Annex B Convoy Organization (Vehicles) to
Operations Order _____79

Time Zone:

SERIAL 1

POSITION NO.	TYPE VEHICLE	PARENT UNIT	REMARKS

SERIAL 2

SMITH
Lieutenant Colonel

DISTRIBUTION: ANNEX N to Operations Order _____ 79

CLASSIFICATION

_____Transportation Battalion (MT)
(location)

Serial No. _____ 79

ANNEX C Conduct of Movement to Operations Order No. _____ 79

Time Zone:

Sequence of vehicles and serials will be shown in annex B. Vehicles not assigned a position will be positioned by the convoy commander.

VEHICLE DISTANCE

Country: 100 meters

Cities: 25 meters

If the convoy must halt while en route, the interval for the prescribed location will be maintained while at the halt.

Hand and arm signals will be used to the maximum to signal for open or close column.

HALTS

At the halt, assistant drivers will dismount and take security positions in the vicinity of their vehicles unless under attack in which case the provisions of annex D (Defense Plan) will apply. When possible, drivers should remain off the shoulder of the road and avoid potholes in the highway to safeguard against mines.

When dismounting from vehicles, all personnel will use the passenger side of the vehicle.

Drivers will perform at halt maintenance.

SAFETY

Safety precautions as prescribed in annex S (Safety) to _____Transportation Battalion (MT) SOP will be enforced. Vehicle operators will be thoroughly briefed on traffic safety with emphasis placed on driving through populated areas where a heavy volume of traffic may be encountered.

SMITH
Lieutenant Colonel

DISTRIBUTION: ANNEX N to Operations Order _____ 79

CLASSIFICATION

_____Transportation Battalion (MT)
(location)

Serial No. _____79

ANNEX D Checkpoints to Operations Order _____79

Time Zone

Maps - Reference (a)

Checkpoints for all logistical convoys are listed below:

CHECKPOINT	GRID COORDINATES	MILES BETWEEN CHECKPOINTS
SP	721642	--
40	711121	9.8
12	701243	2.4
93	693240	2.3
77	695179	2.1
19	701241	3.0
44	682303	0.6
23	682411	0.5
86	678498	1.9
9	666727	1.6

SMITH
Lieutenant Colonel

DISTRIBUTION: ANNEX N to Operations Order _____79

CLASSIFICATION

_____Transportation Battalion (MT)
(location)

Serial No. _____79

ANNEX E Defense Plan to Operations Order _____79

ORGANIZATION OF DEFENSE

The lead task vehicle in each serial will be a 5-ton, 6x6, M813 cargo truck and will be designated as the pace setter. All vehicle floors will be hardened to the maximum with sandbags.

Quad .50 caliber machineguns will be positioned throughout each serial at the rate of one per five trucks.

All personnel are armed and capable of returning maximum volume of fire from entrucked positions.

Forward air control and artillery observers are positioned throughout the convoy (see annex B).

Two armed helicopters will constantly perform route reconnaissance and provide security for the convoy.

CONCEPT OF DEFENSE

(State the most probable type of enemy action expected based on available intelligence data. Then provide detailed instructions on how you want personnel in the convoy to react. Explain what the pyrotechnic signals mean. Go over the hand and arm signals and radio signals to be used.)

SMITH
Lieutenant Colonel

DISTRIBUTION: ANNEX N to Operations Order _____ 79

CLASSIFICATION

_____ Transportation Branch (MT)

(location)

Serial No. _____ 79

ANNEX F Maintenance En Route to Operations Order _____ 79

Time Zone:

ORGANIZATION

Personnel: Trail Maintenance Officer
Unit Mechanics
Wrecker Operators
Bobtail Operators

Equipment: ¼-ton truck with AN/VRC-46 radio
M-816 wrecker
M-52, 5-ton bobtail tractors w/tow bars
Spare parts as designated by the maintenance officer

CONCEPT OF MAINTENANCE

Vehicle halts and repairs must be kept to the minimum time. The convoy commander will determine if a vehicle repair of over 20 minutes can be accomplished.

If a vehicle breaks down, the driver will pull off the road a sufficient distance to allow other vehicles to pass and make an estimate of the repairs required. Assistant driver will provide security.

If a vehicle in the convoy drops out, the first 5-ton, bobtail tractor to pass by will take the vehicle in tow. The trail maintenance officer will be kept informed of vehicles disabled along the convoy and will determine which recovery vehicles will be used to tow the disabled vehicles.

The M-816 wrecker will only be used to tow a disabled vehicle after all the 5-ton, bobtail tractors have been committed. The wrecker must be under the direct control of the maintenance officer to undertake recovery operations.

Tow vehicle (bobtail) operators must be alert and know if theirs is the last vehicle in a serial so they can stop and render assistance to disabled vehicles. A radio jeep will be placed at the end of each serial before the tow vehicles and will be used to control the tow vehicles.

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ANNEX G Communications-Electronics to Operations Order _____ 79

Radionets, station identifications, call signs, frequencies, and equipment are as follows:

NET FREQUENCY CALL SIGN EQUIPMENT

List friendly elements to be contacted along the route for assistance.

- NATO elements.
- US elements in the area.
- "Dust-off."

PYROTECHNICS

- Red smoke - convoy under attack - enemy target mark.
- Green smoke - friendly troops/cease fire.
- Yellow smoke - medical evacuation.
- White smoke - concealment of friendly troops.

PANEL MARKERS

- White - convoy commander.
- Red - first serial, front and rear.
- Yellow - second serial, front and rear.

ARM AND HAND SIGNALS: Arm and hand signals will be used to the maximum.

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ANNEX H Medical Evacuation Procedures (Dust-Off)

The convoy commander will know how to contact the dust-off helicopter control. In the regions within radio distance of allied buildup areas, dust-off can be reached by a special radio frequency. The call sign is merely "dust-off." Outside these areas, medical evacuation helicopters can be obtained through either NATO elements or Army aerial reconnaissance aircraft.

After the medevac helicopter has been contacted, the convoy commander should relay to him the following details:

- Exact location by grid coordinates.
- Nature of wound or injury.
- Security condition on the ground.

A system of visual signals may be employed to bring the helicopter to exact location.

- During daylight hours, smoke grenades may be used. The convoy commander will not transmit by radio the color of smoke as this may be monitored by the enemy. He will simply say, "I throw smoke," and wait for the pilot to identify a color. The convoy commander can confirm the color and bring the helicopter in.
- At night, vehicle headlights or flares may be used to guide the pilot into the landing zone.
- The convoy commander will take steps to secure the landing zone, including deploying troops in a perimeter force.

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ANNEX I Truck Loading and Security

The driver is responsible for insuring that his vehicle is properly loaded and secured for safe movement over the highway. The unit furnishing the vehicles will provide, as needed, side boards, tarpaulins, chains, binders, and enough rope to adequately secure the load.

The shipping agency is responsible for physically securing the load to the vehicle, using materials provided by the truck unit. The driver will supervise in securing the load.

When steel strapping or special tiedown devices are required to secure items of cargo, they will be provided by the shipper.

Vehicle operators will personally check the cargo loaded on their vehicles with the TCMD (Transportation Control Movement Document) to insure that both agree.

During loading operations the convoy commander or his designated representative will be present to inspect the vehicles and remedy any deficiencies. Prior to the departure of the convoy, the loads must be inspected by the convoy commander or his representative and any unsatisfactory loads corrected.

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ANNEX J Driver's Briefing

During the conduct of convoy operations in _____, it is important that participating individuals, particularly drivers, have a thorough understanding of the concept of operation. Drivers should be briefed on the following as a minimum:

- Destination and location of off-road sites.
- Route and rate of march.
- Vehicle interval.

- Action to be taken if attacked.
- Maintenance procedures (before-, during-, and after-operation).
- Cargo loading and unloading.
- Critical points and checkpoints.
- Individual conduct during the convoy.
- Uniform and equipment to be worn.
- Visual signals (pyrotechnics, hand and arm signals).
- Chain of command of convoy and locations of key personnel in the convoy.
- Vehicle safety, speed, and the dangers of populated areas should be emphasized.
- Location of security elements.
- Location of POL refill points along the route.
- Weapons safety - List and designate specific areas for loading and cleaning weapons. No rounds will be chambered unless under attack. Convoy commander or an officer will check to see that all weapons are cleared at destination.
- Logistical arrangement for convoy personnel at destination.

Personnel will be briefed again prior to return to home station.

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ANNEX K Convoy Cargo/Personnel Manifest

BATTALION_____

DESTINATION_____

VEHICLE #	DRIVER	ASST DRIVER	CARGO/PASSENGER	CONSIGNEE

NOTE: The convoy cargo/personnel manifest should be sent to the battalion operations section before the convoy departs. The manifest should be available to the convoy commander with enough copies for his control personnel. This form aids in distribution of cargo at destination and reorganization of the convoy after an attack.

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ANNEX L Security of Trail Party

Since the trail party for large convoy serials is really a separate convoy, it should have its own organic security. Experience in Vietnam indicates that a trail party is seldom the target of an attack, so trail security need not be as heavy as that assigned to the main convoy element.

If a breakdown occurs in an insecure area and repair or recovery cannot be done quickly, flank security should be deployed. All personnel in the area should be alerted.

Exposure at the recovery site will be kept to an absolute minimum. If repair will cause a delay, the vehicle should be towed to a more secure area for repair. Breakdowns in relatively secure areas may be repaired in place if the repair will require no more than 20 minutes.

If the trail party becomes stranded at nightfall, the trail officer should consolidate his force and form a defensive perimeter if contact cannot be made with NATO units and the route cannot be traveled during the hours of darkness.

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ANNEX M Bridge Reconnaissance and Vehicle Weight Classification

Prior to departure of the convoy, the convoy commander will learn the location of the weakest bridge on his route, as well as the weight of the heaviest vehicle in his convoy.

As a rule of thumb, the weight classification of a wheeled vehicle is equal to approximately 85 percent of the gross vehicle weight. The classification for a combination vehicle (two or more single vehicles connected and operating as one unit) is figured basically the same as for a single vehicle. The classification for a nonstandard combination (a single vehicle towing another vehicle at a distance of less than 100 meters) is figured by adding the two vehicles' classifications and multiplying by 9.

The engineer brigade supporting the corps area maintains a listing of all bridges on the route to be traveled. This list gives the coordinates of the bridge and its class. If the convoy commander learns that bridges to be crossed have a classification lower than the heaviest vehicle, engineer assistance should be requested to strengthen the bridge or construct a bypass.

If the convoy commander finds that the bridge classification is enough to support his heaviest vehicle, he can proceed with only normal convoy discipline - a spacing of 100 meters between vehicles and a maximum speed of 25 MPH.

A caution crossing may be made if the caution classification is as high as the heaviest vehicle. The caution classification is obtained by multiplying the normal classification by 1.25. Caution crossings require that vehicles remain on the centerline of the bridge, maintain a spacing of 50 meters between vehicles, observe a speed limit of 8 MPH with no stopping, quick acceleration, or shift of gears on the bridge. Only one vehicle is allowed to cross the bridge at one time.

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ANNEX N Distribution to Operations Order _____ 79

Time Zone: _____

_____	Armored Division	2
_____	Inf Div	2
FO _____		1
FAC _____		1
_____	Company, Engineer Battalion	1

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APPENDIX L
STANDING OPERATING PROCEDURES (SOP)

FORMAT

Standing operating procedures follow a generally standardized format in that they have a heading, a body, and a close (authentication).

Heading. The heading identifies the unit which prepared the SOP, along with its location or mailing address. It gives the date of issue, provides a file or SOP number for reference, and gives the SOP title.

Body. The information contained in the body of the SOP varies to meet the needs of the preparing unit. It provides a general introduction to the SOP as shown in section I of the sample outline. Subsequent sections go into a more detailed coverage of one or more specific major operational areas of the unit (secs II through VII of the sample outline).

Close (Authentication). The close of the SOP contains the signatures of the commander and the officer who make the SOP official. It also includes a list of annexes to the SOP, and the distribution.

OUTLINE

The outline below is offered as a guide in the preparation of SOPs within a transportation unit.

This outline provides for a comprehensive SOP covering major functional areas of a unit. In the interest of ease of preparation and use and in accordance with the desires of the commander, any or all sections may be prepared as individual SOPs.

The format for the heading and close is considered adequate for all purposes. However, local directives may require some changes to this format or the information contained therein.

The subject matter listed within the body of the SOP is not intended to be restrictive or all-inclusive. Additions, deletions, and/or resequencing may be done as seen fit. Subject matter may be discussed in as brief or as detailed a manner as the commander desires.

20. Mail:
    a. Handling of official mail.
    b. Handling of personal mail.
    c. Registered and insured mail.

21. Leaves and passes:
    a. Command policy--conduct and venereal disease and delinquency control.
    b. Authority to grant.
    c. Sign out (in) register.

22. Journal and history:
    Responsibility for unit journal and history.

23. Military publications:
    a. Receipt and filing.
    b. Availability in unit.
    c. Requisition of special and/or additional publications.

24. Handling of prisoners of war:
    a. Provisions of and reference to FM's 19-40 and 27-10.
    b. Special instructions to person(s) effecting capture.

25. Awards and decorations:
    a. Channels for submission.
    b. Form.
    c. Presentation.

26. Orders (FM 101-5):
    a. Types.
    b. Preparation.

27. Billets and bivouacs:
    a. Policies--occupation and clearance.
    b. Billeting and/or cleanup parties.

Section IV. MOVEMENT

28. Format (references to SOP of higher headquarters).

29. Movement by motor (FM 55-30).
    a. Coordination with higher headquarters.
    b. Preparation of unit vehicles (tarps, tailgates, windshields).
    c. Convoy operations, approving authority (motor march).
        (1) Strip maps.

(2) Route reconnaissance.

(3) Makeup of convoy (serials and march units).

(4) Control personnel and their duties.

(5) Convoy and vehicle distance and time factors (vehicle and column gaps; road distance).

(6) Start point and release point.

(7) Rate of movement (speed, pace, and rate of march).

(8) Time lengths (convoy, serial, march unit).

(9) Messing and refueling.

(10) Rest halts.

(11) Accident and breakdown procedures.

(12) Operating during hours of darkness (control, blackout measures).

(13) Communications.

(14) Supporting services (fuel, maintenance, medical).

(15) Use of guides, traffic escorts.

(16) Loads and loading.

(17) Cargo security.

(18) Active and passive defense measures (sec V).

(19) Protective equipment to be worn, carried.

30. Vehicle and equipment operations:

a. Motor pool (task vehicles).

(1) Forms, records, and reports.

(2) Receipt of commitments.

(3) Dispatch of vehicles.

(4) Vehicle servicing.

(5) Vehicle maintenance.

b Procedures for the use of unit administrative vehicles.

31. Movement by rail:

a. Unit loading plan (TM 55-604).

b. Coordinating actions with staff officers of higher headquarters.

(1) S1 (administration).

(a) Movement policies.

(b) Troop list and orders.

(c) Transportation movements matters.

(2) S2 (security). Security requirements.

(3) S3 (plans and operations).

(a) Requirements for rolling stock.

(b) Coordination of loading plan.

(c) Loading area and schedule.

(d) Troop entraining and detraining.

(4) S4 (support services).

(a) Initiation of transportation request.

(b) Troop messing.

(c) Blocking and dunnage.

(d) Shipping documents.

32. Movement by air.

a. Unit loading plan (TM 55-604).

b. Coordinating actions with staff officers of higher headquarters.

(1) S1 (administration). (Same as motor.)

(2) S2 (security). (Same as motor.)

(3) S3 (plans and operations).

(a) Determination of aircraft required.

(b) Coordination of loading plan.

(c) Loading schedule and area.

(d) Troop emplaning and deplaning.

(e) Explanation of air transport techniques.

(4) S4 (support services).

(a) Initiation of transportation request.

(b) Availability of tiedown devices.

(c) Preparation of weight-of-equipment data for loading computations.

(d) Shipping documents.

(e) Number and type of vehicles required to load and unload aircraft.

(f) Troop messing.

33. Movement by water.

a. Unit loading plan (TM 55-604).

b. Coordination actions with staff officers of higher headquarters.

(1) S1 (administration). (Same as motor.)

(2) S2 (security). (Same as motor.)

(3) S3 (plans and operations).

(a) Determination of shipping requirements.

(b) Coordination of loading plan.

(c) Loading schedule and area.

(d) Troop embarkation and debarkation.

(4) S4 (support services.)

(a) Initiation of transportation request.

(b) Troop messing.

(c) Shipping documents.

Section V. SECURITY

34. Format (policies and responsibilities).

35. Security during movement by motor.
    a. Unit security guards (air, ground).
    b. Attached security forces.
    c. Manning of vehicular weapons.
    d. Action in event of attack by--
        (1) Air.
        (2) Artillery.
        (3) Ground troops and guerrillas (including ambush and snipers.)
        (4) Chemical-biological-nuclear agents.
    e. At-halt defense and camouflage measures.
    f. Weapons and ammunition to be carried.
    g. Hardening of vehicles.

36. Security in bivouac:
    a. Camouflage.
    b. Perimeter defense.
    c. Mines and boobytraps.
    d. Action in event of attack by--
        (1) Air.
        (2) Artillery.
        (3) Ground troops and guerrillas.
        (4) Chemical-biological-nuclear agents.
    e. Sentries and outposts.
    f. Joint security measures.

37. Attack warning signals:
    a. Air (airborne).
    b. Artillery.
    c. Ground troops and guerrillas.
    d. Chemical-biological-nuclear.

38. Fire safety and firefighting:
    a. Fire plan.
    b. Fire personnel and duties.
    c. Safety plan and rules (motor pool, mess, etc.).

39. Alert plans:

a. Unit alert plan.
b. Alert roster.
c. Arms and equipment.
d. Phase system for alert warnings.

40. Destruction of equipment.
    a. Unit plan.
    b. Team personnel and duties.
    c. Order for destruction.

41. Area damage control:
    a. Unit plan.
    b. Team personnel and duties.
    c. Team equipment.

Section VI. COMMUNICATIONS

42. Format:
    a. Types used.
    b. Priorities for use.
    c. Alternate means.

43. Communications within and between units:
    a. Radio net.
    b. Telephone system.
    c. Other available means.
    d. Responsibilities for installation.

44. Communications procedures:
    a. Voice procedures (radio, telephone).
    b. Visual, sound, messenger procedures.
    c. Communications security (includes coding and decoding).
    d. Reference to communications-electronics operating instructions of higher headquarters.
    e. Pyrotechnic signals.

45. Communications maintenance responsibility:
    a. Commander.
    b. Communications officer.
    c. Users and operations.

Section VII. SUPPLY AND MAINTENANCE

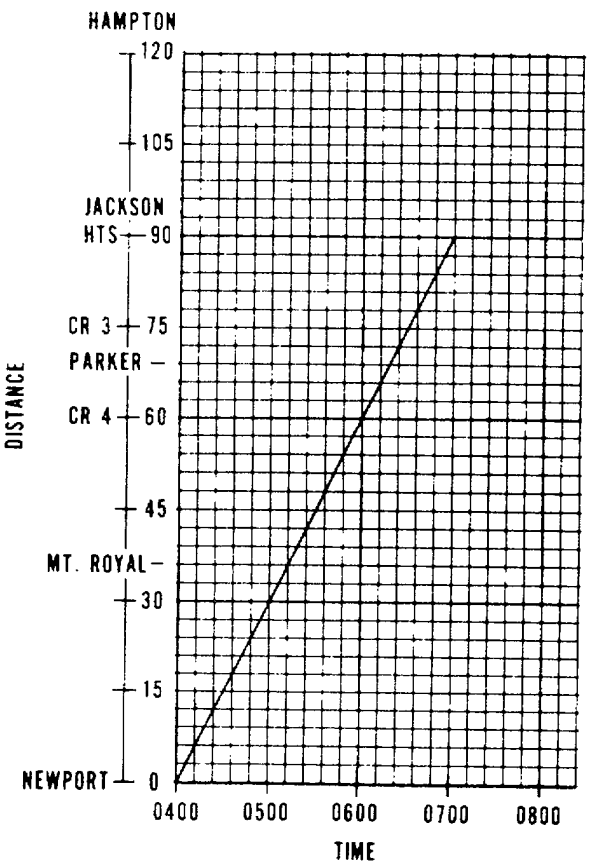
46. Format (refer to SOP of higher headquarters; designate support agencies if needed).

PLOTTING A ROAD MOVEMENT GRAPH

In this section, convoy operations and motor moves in general have been discussed. In the remainder of this section, a fictitious motor move is planned and plotted on a road movement graph. Specific formulas for figuring road space and time length are explained.

HOW TO PREPARE A ROAD MOVEMENT GRAPH

The road movement graph is prepared on graph paper with the vertical scale showing distance and the horizontal scale showing time. The lower lefthand corner of the graph represents zero miles and "X" hours. The left vertical line shows the greatest number of kilometers to be traveled by any part of the movement. The bottom line shows the time period which may be used by the entire move. Critical points along the route, such as cities, towns, road junctions, and bottlenecks are indicated in the left margin in scale with the graph. This graph shows only the movement of the first march column's first vehicle plotted on it. Notice in the left margin that towns and crossroads are indicated at their respective distances from the start point.



SCHEDULE OF THE HEAD OF A COLUMN

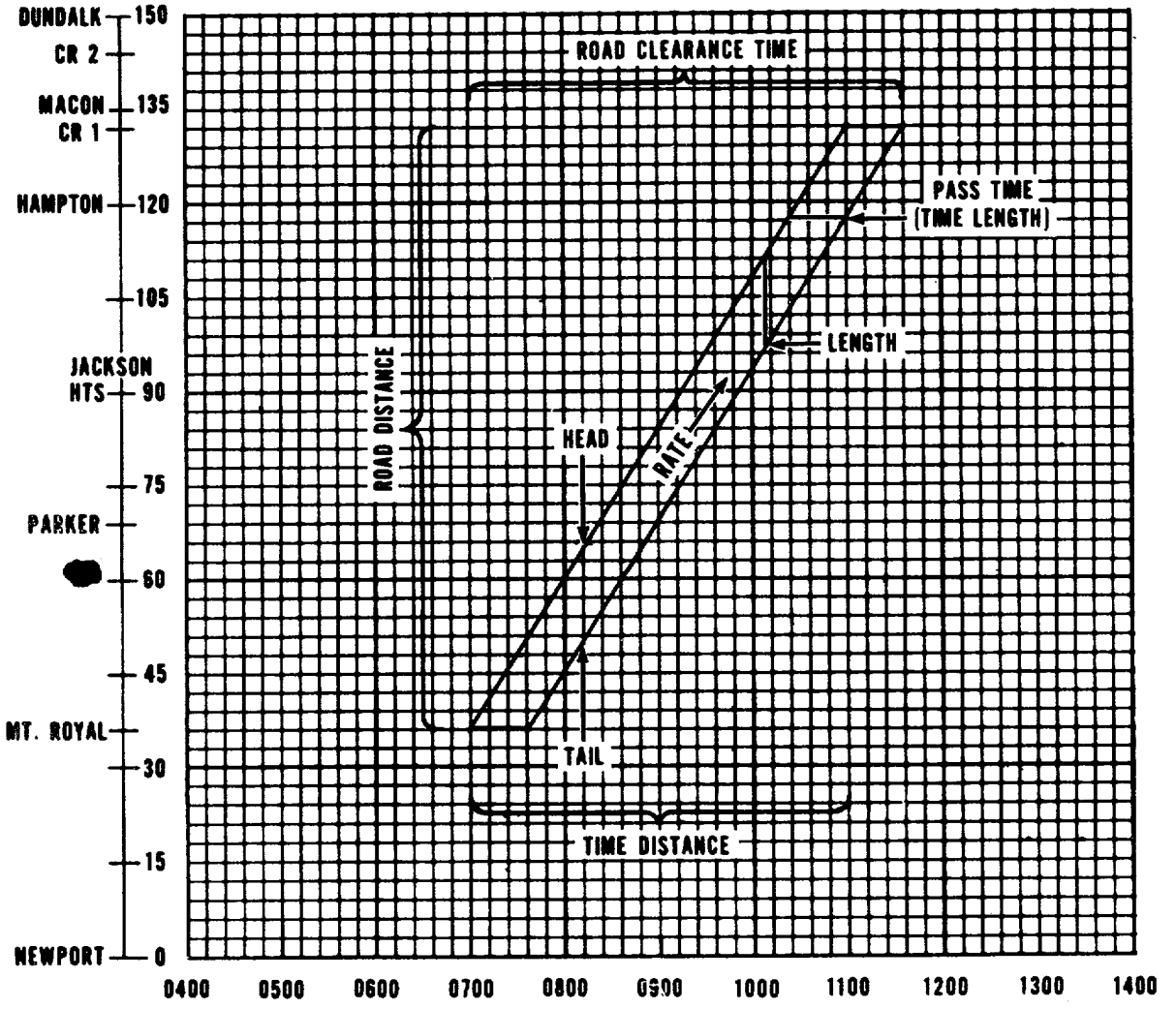
This graph shows the movement of the head of a column from Newport to Jackson Heights. The vertical scale (left side of the graph) shows kilometers. Each line equals 3 kilometers. The horizontal scale of the graph indicates hours. Each line equals 12 minutes. The head of the column is plotted on the graph at the time it is scheduled to leave Newport (kilometer 0) at 0400 hours, travel time to Jackson Heights a distance of 90 kilometers, and a scheduled arrival time of 0700 hours. To complete the move in the prescribed time, a rate of march of 30 kilometers in the hour must be maintained.

Columns, serials, or march units are shown on the graph by parallel diagonal lines. The time it takes for the march element to clear a section of road (time length or TL) is shown by the horizontal space between the diagonal lines. Draw a horizontal line connecting the points representing the first and last vehicles of an element, the time length of that element. In the following explanations, the first vehicle of a march element is called the head and the last vehicle is called the tail. The head of the column is plotted at the start point on the vertical scale and at the time of starting on the horizontal scale. The clearance time of the tail is then plotted.

Progress of the column or element is indicated by plotting time and distance on the graph using the planned rate of march. When halts are planned, they are shown on the graph. The graph can be changed to show schedule changes as they occur. Page F-6 explains the plotting of several moves on a graph. Page F-7 explains how schedule changes for these moves are plotted.

This graph shows the motor movement terms. Notice that a move is now completely pictured--both the head and the tail are shown by the two parallel diagonal lines. The time length of the column is shown as 36 minutes. That is, it took 36 minutes for the entire column to clear the start point. In addition, this graph shows the column length

to be about 14 kilometers, according to the position of its head and tail. Remember that time distance (TD) is how long it took the head of the column to go from the start point to the release point. Pass time (time length) is how long it took the entire column to pass one point. The road clearance time is the time distance plus the pass time (time length) of the column.



EXPLANATION OF A ROAD MOVEMENT GRAPH

F-5

Scheduling Moves. Plotting several movements on one graph, while it takes more work, is no different than plotting one move. The mechanics are the same. This graph shows the scheduling of six separate organized motor moves and one foot march. Each move is explained below.

Column A is scheduled to leave the start point, Newport, at 0400 and clear at 0500, a pass time (time length) of 1 hour. Distance to the release point at Hampton is 120 kilometers. Therefore, the time distance is 120 divided by 30 kilometers in the hour (rate), or 4 hours. The time this column takes to complete the move is the time distance of 4 hours plus the pass time (time length) of 1 hour, or 5 hours. The head will, therefore, arrive at the RP at 0800 and the tail at 0900. The planner can find how long it will take to complete the move by subtracting 0400 (SP time) from 0900 (tail arrived at RP)--5 hours.

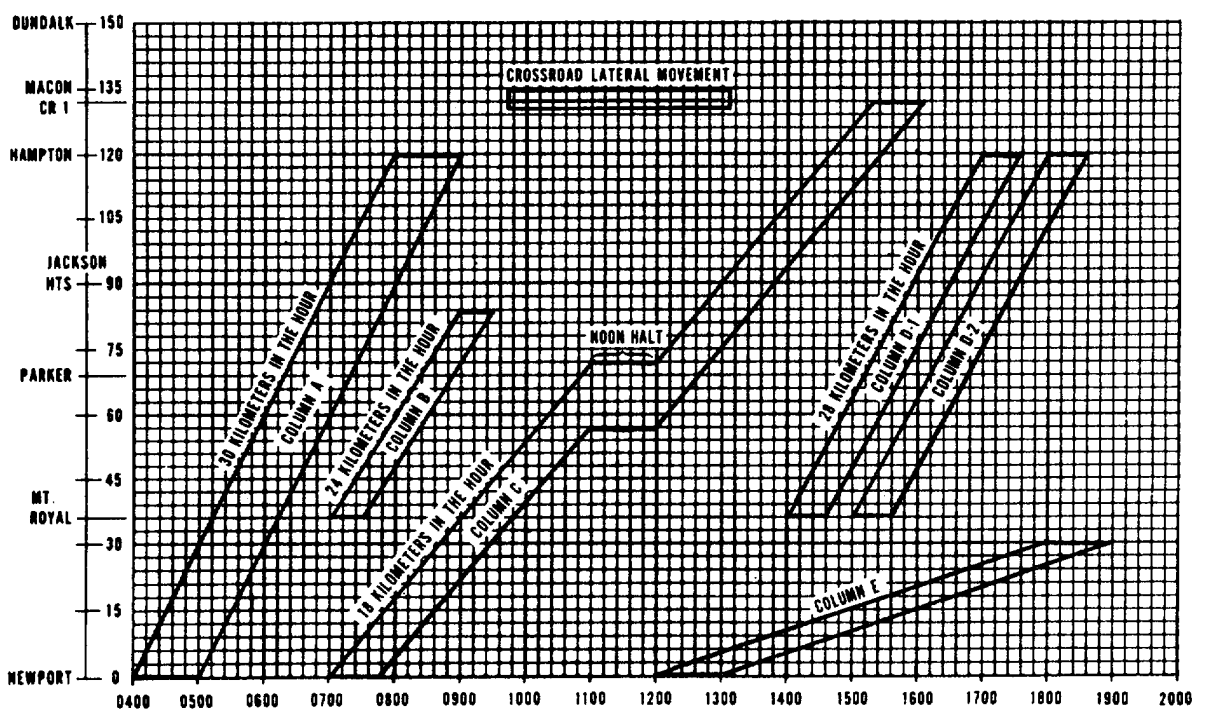
Column B makes a shorter move. It is scheduled to clear the start point at Mount Royal at 0700, travel 48 kilometers, and complete the move in 2 1 hours. Time distance of the route at 24 kilometers in the hour is 2 hours (48÷24), but the planner must add the pass time (time length) (30 minutes) of the column to the time distance of 2 hours to find how much time the entire move will need.

A crossroad lateral movement is scheduled to cross at crossroad (cr) from 0940 until 1310. The graph plainly shows that the lateral movement will not interfere with any of the other moves.

Column C is scheduled to move more slowly than any of the other motor columns. When you look at the graph, this is apparent because the diagonal line showing time distance is not as steep as the lines of columns A and B and both elements of D. A line's steepness on a graph indicates the speed of the column it represents. Column C is scheduled to travel 132 kilometers at 18 KMIH. The planner adds to the time distance of 7 hours 20 minutes, a 1-hour mess halt to find that the head of the column will require 8 hours 20 minutes to complete the move.

Column D-1 and D-2, two elements of one march serial, are scheduled to travel at 28 kilometers in the hour from the same start point to the same release point, one element leaving 24 minutes after the other has cleared.

Column E is a foot march on the route. It is traveling slowly--24 kilometers in 6 hours time.



SCHEDULING MOVES

Adjustments In a Scheduled Move. This graph shows adjustments that had to be made in the move scheduled in the previous graph. These adjustments are explained below.

Column A completed the move as scheduled.

Column B was scheduled to move supplies from Mount Royal to a depot 6 kilometers this side of Jackson Heights. However, orders were changed and at a highway regulation point, the column commander was told to deliver the supplies to Macon, 51 kilometers farther than originally scheduled. Instead of column B completing the move in 2 ½ hours, it required slightly more than 4 ½ hours. The rate of march remained at 24 KMIH. You can see now that the schedule for the lateral road movement and for column C must be adjusted because of column B's lengthened move.

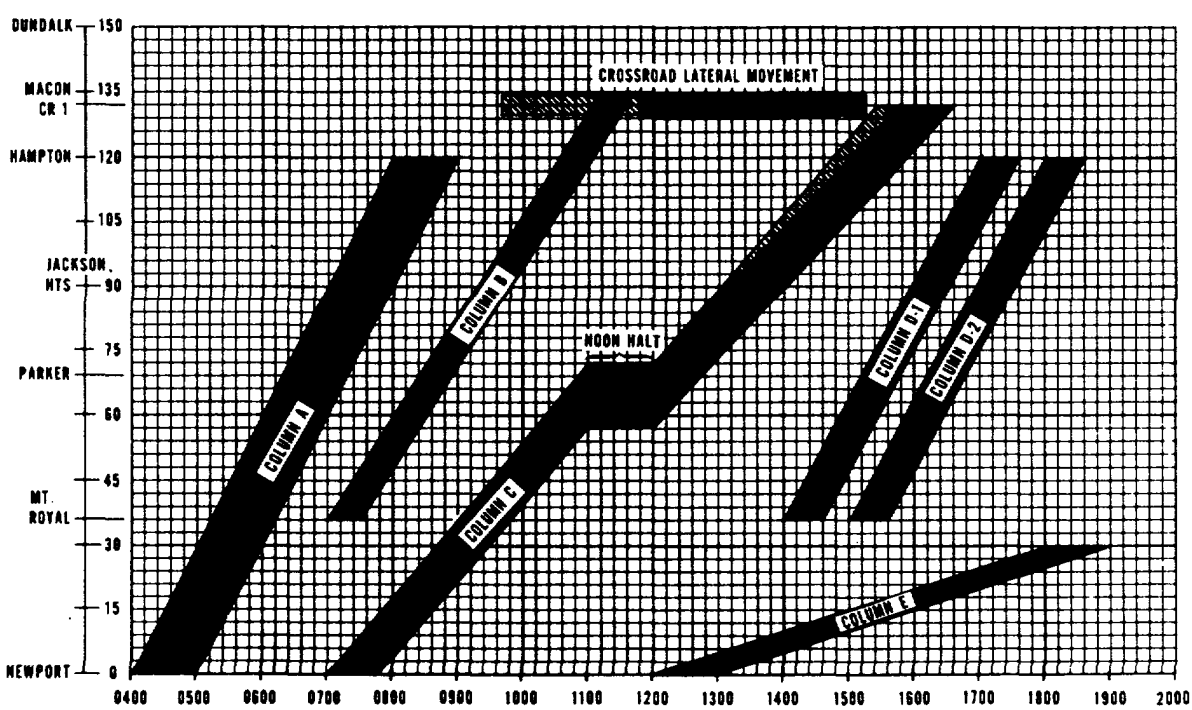
The crossroad lateral movement was scheduled to cross the route at crossroad 1 from 0940 until 1310. Instead, it was ordered to cross beginning at 1145. It could not cross at the original time because of column B's change of orders. The lateral move's change in schedule required changing column C's planned move.

Column C was informed by regulation point personnel of the schedule changes which had already occurred. The commander was told to continue his move at the slower rate of 16 KMIH after 1-hour mess halt. The column was scheduled to travel at 18 KMIH until the noon halt. If this rate were maintained, column C would be in danger of colliding with the lateral move at cr 1. By reducing its rate, column C will arrive at cr 1 long enough after the lateral movement has passed so that neither move will be disrupted. Column C's schedule could have been changed by another means. The mess halt could have been lenghtened by some 15 or 20 minutes. When the move started again, it could have continued at the same rate of march as before the halt.

Note that:

Both elements of column D maintained their original schedule.

Column E was not affected by the schedule changes.



ADJUSTMENTS IN A SCHEDULED MOVE **F-7**

APPENDIX N
DEMOLITION OF VEHICLES

When necessary to prevent the enemy from using or salvaging vehicles, commanders should destroy or damage beyond repair all parts essential to the operation of the vehicle. Take all essential spare parts.

WHAT ARE SOME METHODS OF DESTRUCTION?

Some methods for destroying vehicles are:

Smashing. Use sledges, axes, pickaxes, hammers, crowbars, or heavy tools.

Cutting. Use axes, machetes, and bayonets.

Burning. Use gasoline, kerosene, oil, flame throwers, or incendiaries.

Explosives. Use firearms, grenades, or other explosives.

Disposal. Bury parts in slit trenches, foxholes, or other holes. Throw parts in streams or bodies of water. Scatter them over a large area.

Three methods of destroying vehicles are outlined below in the order of their effectiveness. Whichever is used, the sequence outlined should be followed to assure uniformity of destruction among a group of similar vehicles.

Method No. 1.

Using an ax, pick, sledge, or any other heavy object, smash all vital elements, such as the distributor, carburetor, air cleaner, radiator, generator, ignition coil, fuel pump, spark plugs, lights, instruments, and controls. If time permits and a sufficiently heavy object is available, smash the engine cylinder block and head, crankcase, transmission, and axles. Deflate, slash, and destroy the tires.

Puncture fuel tanks. Remove or dispose of fire extinguishers.

Pour gasoline or oil over the entire vehicle and ignite it.

Method No. 2.

Puncture the fuel tanks. Remove or dispose of fire extinguishers.

Use tanks, artillery, antitank rockets, or grenades to fire on the vehicle. Aim at the engine compartment, axles, and wheels. If a good fire is started, the vehicle may be considered to be destroyed.

Method No. 3.

Prepare charges of explosive with a nonelectric blasting cap and an appropriate length of safety fuse for each charge. Place one charge on the transmission and one as low as possible on either side of the engine. The second charge is placed to insure destruction of the engine block and crankcase.

> CAUTION: If charges are prepared beforehand and carried in the vehicle, keep the blasting caps & safety fuses separated from the charges until they are used.

Ignite the charges and take cover. The danger zone is approximately 200 yards. The fuse will burn approximately 1 minute for each 2 feet of fuse.

PNEUMATIC TIRES

Pneumatic tires, including the spare, must be destroyed, even if time will not permit destruction of any other part of the vehicle. The following methods may be used:

- Incendiary grenades may be used. Ignite one grenade under each tire. When this method is combined with the destruction of the vehicle by other explosives, the incendiary fires must be well started before the charge is detonated.
- An ax, a pick, or gunfire may be used to damage tires. They should be deflated and valves should be destroyed. Gasoline may be poured on slashed or punctured tires and ignited to provide for complete tire destruction.

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