

UNITED STATES MARINE CORPS
Logistics Operations School
Marine Corps Combat Service Support Schools
PSC Box 20041
Camp Lejeune, North Carolina 28542-0041

MTCC 4409

STUDENT OUTLINE

ROUTE RECONNAISSANCE AND CLASSIFICATION

a. Terminal Learning Objective:

(1) Provided with a requirement to move motor transport vehicles, required tools and equipment, and the referances, supervise convoy operations, per the referances. (35XX.03.09)

b. Enabling Learning Objectives:

(1) Provided with a requirement to move motor transport vehicles, required tools and equipment, and the referances, identify the minimum traveled way width of a convoy route, per the referances. (35XX.03.09o)

(2) Provided with a requirement to move motor transport vehicles, required tools and equipment, and the referances, identify the minimum load classification of a convoy route, per the referances. (35XX.03.09p)

(3) Provided with a requirement to move motor transport vehicles, required tools and equipment, and the referances, identify all obstructions to traffic flow on the route recon overlay, per the referances. (35XX.03.09q)

(4) Provided with a requirement to move motor transport vehicles, required tools and equipment, and the referances, identify the load classification for vehicles tasked to travel on improved roads (highway), per the referances. (35XX.03.09r)

(5) Provided with a requirement to move motor transport vehicles, required tools and equipment, and the referances, identify the load classification for vehicles tasked to travel cross-country, per the referances. (35XX.03.09s)

(6) Provided with a requirement to move motor transport vehicles, required tools and equipment, and the referances,

identify the types of route reconassance, per the referances. (35XX.03.09t)

(7) Provided with a requirment to move motor transport vehicles, required tools and equipment, and the referances, identify the route categories based on their cabillity, per the referances. (35XX.03.09u)

(8) Provided with a requirment to move motor transport vehicles, required tools and equipment, and the referances, identify the purpose of a route reconnasance overlay, per the referances. (35XX.03.09v)

1. TYPES OF ROUTE RECONNAISSANCE

a. There are two types of route reconnaissance.

(1) Hasty Route Reconnaissance

(a) A hasty reconnaissance is conducted to determine the immediate military traffic capability of a specified route.

(b) Hasty route reconnaissance is limited to critical terrain data that is necessary for route classification and meets the intelligence requirements of the situation.

(c) The report usually consists of a map overlay supplemented by additional reports about various aspects of the terrain.

(2) Deliberate Route Reconnaissance

(a) This type of reconnaissance is made when sufficient time and qualified personnel are available.

(b) Deliberate reconnaissance provides the necessary data for a thorough analysis and classification of significant terrain features along a route.

(c) A deliberate route reconnaissance is detailed. Deliberate route reconnaissance is performed by ground transportation or air or by both.

2. ROUTE CLASSIFICATION SYSTEM: The route classification system is designed to assist in planning and executing a military movement. Routes are classified according to the factors of minimum width, worst route type, least bridge military load classification and obstructions to traffic flow.

a. Route Widths. The width of a route including bridges, tunnels, roads, and other constrictions is the narrowest width of a traveled way expressed in meters or feet. Once the traveled way width is understood, then lane width can be determined.

(1) Lane widths. The number of lanes of a given route is determined by the width of a traveled way. The average width of a lane required for movement of one column is established at 3.50 meters or 11 1/2 feet for wheeled vehicles and 4 meters or 13 feet for tracked vehicles. Lane width establishes traffic flow.

(2) Traffic flow is determined by the number of lanes.

(a) Single flow routes allow a column of vehicles to proceed and, in addition, individual oncoming or overtaking vehicles to pass at predetermined points.

(b) Double flow routes allow two columns of vehicles to proceed simultaneously either in the same or opposite directions.

b. Route Type. For the purpose of classification, routes are designated by their capability to withstand the effects of weather. The route types are divided into three categories:

(1) Type X is an all weather route which, with reasonable maintenance, is passable throughout the year. At no time is the route closed to traffic by weather conditions other than temporary snow or flood blockage.

(2) Type Y is an all weather route which, with reasonable maintenance, can be kept open in all weather but sometimes only to traffic considerably less than maximum capacity. The route may be closed for short periods of up to one day at a time by adverse weather conditions during which heavy use of the road would probably lead to complete collapse.

(3) Type Z fair weather route is any route which quickly becomes impassable in adverse weather and cannot be kept open by maintenance short of major construction. This category of route is so seriously affected by weather that traffic may be brought to a halt for long periods.

c. The military load classification system is a load capacity rating system which considers a vehicle's weight and type and its effects on routes and bridges. The classification system is represented by whole numbers which are assigned to vehicles, bridges, and routes. Normally, the lowest bridge military load classification number, regardless of vehicle type

or conditions to traffic flow, determines the military load classification of a route. This is done to protect the driver, vehicle, load, and bridge. By selecting the lowest bridge classification number, it is assured the route is not overloaded. It should be remembered that classifications are based by their safe load capacity and physical dimensions.

(1) Military road maneuver networks.

(a) The class of a military road maneuver network is fixed by the minimum route classification of the network.

(b) To facilitate movement, individual routes included in a low class network but over which heavier equipment can be moved, are grouped and identified in broad categories i.e., average traffic routes (class 50), heavy traffic routes (class 80), and very heavy traffic routes (class 120).

(2) Classification of bridges.

(a) The bridge and vehicle classification system is developed in conformance with standardization agreements and provides a means by which a driver can determine whether or not his vehicle can safely cross a specific bridge.

(b) Before a driver can determine whether or not his vehicle can cross a given bridge, he must know:

(1) The military load class of the bridge and vehicle.

(2) The width of the bridge compared to the width of the vehicle.

(3) The overhead clearance of the bridge compared to the height of the vehicle.

(4) The traffic control measures required during crossing.

(c) It should be noted that bridge lane widths are used to determine the classification for posting and for controlling crossing vehicles and should not be confused with minimum traveled way widths specified for routes.

d. Obstructions

(1) Obstructions are factors which restrict the type, amount, or speed of traffic flow. Route obstructions, with the exception of bridges which are reported separately as military

load classification, are indicated in the route reconnaissance formula by the abbreviation (OB) at the end of the formula's notation.

(2) The interpreter can refer to the reconnaissance overlay and find the route reconnaissance symbol which represents the appropriate obstruction.

(3) Typical types of obstructions are: slopes, curves, underpasses, and tunnels.

3. CLASSIFICATION SIGNS

a. Bridge Classification Signs. Both civil and military bridges in an operational area which have been classified, have circular signs indicating the safe military load classification or capacity of the bridge. These signs have a yellow background with black inscriptions. The inscriptions are as large as the diameter of the sign allows.

(1) Normal classification signs are signs which indicate one type of vehicle flow either one lane or two lanes. Normal signs for one-lane bridges are 16 inches in diameter and normal two lane signs are 20 inches in diameter. Two lane signs are divided into left and right sections by a vertical line which shows the dual traffic flow in the left section and single flow in the right section by vertical arrows beneath the classification number.

(2) Special classification signs are signs which indicate two types of vehicle movement. Examples of this would appear when wheeled and tracked vehicles are shown on the same sign. These signs are also 20 inches in diameter. The signs are divided by a black horizontal line. The appropriate vehicle symbol with its classification number will be located in the upper and lower halves.

(3) Rectangular signs provide additional instructions and technical information. They are a minimum of 16 inches in height or width and have yellow backgrounds with black inscriptions. These inscriptions will also be as large as the sign will allow. Signs of this type will reflect the width and height limitations. In areas where civilian instruction or technical information signs exist and are sufficiently clear of the bridge, no posting is necessary. In those countries which conform to the Geneva Convention of 1949, international signs may be used in lieu of rectangular military signs.

(4) Multilane bridges. Bridges of three or more lanes are special cases which require individual consideration in

posting. To determine the number of lanes, minimum widths for the respective load classification are used.

b. Positioning of Bridge Signs. Bridge signs are positioned so as to help maintain an uninterrupted flow of traffic. The locations of circular, rectangular, special military load classification signs, and appropriate warning signs are as follows:

(1) Circular signs are placed at both ends of the bridge in such a position as to be clearly visible to oncoming traffic.

(2) Rectangular signs, other than those indicating height restrictions, are placed immediately below the classification (circular) signs.

(3) Signs reflecting height restrictions are placed centrally on the overhead obstruction.

(4) Special classification numbers are never posted on standard bridge marking signs. They will be a separate sign.

(5) Appropriate advance warning signs are placed on the approaches to bridges as required.

4. TYPES OF CROSSINGS. There are two types of crossings.

a. Normal crossings are made when the vehicle class number is equal to or less than the class number of the bridge.

(1) During this type of crossing, normal convoy discipline is imposed; that is minimum spacing of 30.5 meters or 100 feet and maximum speed of 45 kph or 25 mph.

(2) Normal crossings can cause temporary obstructions when crossing a bridge with both single and double flow traffic in that double flow traffic would have to be halted to allow the higher single flow classification to pass.

b. Special Crossings. Under exceptional conditions, vehicles may be authorized by the local tactical commander to cross bridges when the bridge class number is less than that of the vehicles. This type of crossing is further subdivided into caution and risk crossings.

(1) Caution crossings.

(a) A caution classification may be obtained for nonstandard fixed bridges by multiplying the class number for single flow traffic by 1.25.

(b) For standard military prefabricated fixed and floating bridges, the caution classification is obtained from appropriate technical manuals.

(c) Caution crossings require vehicles to remain on the center line of the bridge. Maintain 50 meters between vehicles, and run at a speed of 12 kph or 8 mph without stopping, accelerating or shifting gears.

(2) Risk crossings.

(a) A risk crossing may be made only on standard military prefabricated fixed or floating bridges. The classification for risk crossings is obtained from appropriate technical manuals.

(b) Risk crossings are made only in the gravest emergency.

(c) Vehicles are required to straddle the center line, run a speed of 5 KPH or 3 MPH without stopping, accelerating or shifting gears, and only one vehicle is permitted on the bridge at a time.

(d) The engineer officer will also inspect the bridge after each vehicle has crossed.

5. ROUTE RECONNAISSANCE SYMBOLS

a. Route reconnaissance symbols are notations employed to insure that the route reconnaissance reports are universally understood. These symbols, just like standard topographic symbols on a map, give the interpreter a summary of the route reconnaissance by showing the obstacles or obstructions to be negotiated.

b. The symbols along with their definitions are located in FM 55-15. These symbols are placed on map overlays in the order and positions where they will be encountered during vehicle movements.

6. ROUTE CLASSIFICATION FORMULA

a. The route classification formula is developed from alpha and numeric characters expressed in a standardized sequence of minimum traveled way width, route type, lowest military load classification, and obstructions if present. The formula briefly describes a specific route and is used together with a route reconnaissance overlay of the route. If there are any

obstructions noted in the formula, in the form of OB in parenthesis at the formula's end, then it is necessary to refer to the route reconnaissance overlay to determine the exact nature of the obstruction.

b. Special Conditions

(1) Snow blockage. The effects of snow are not normally considered obstructions to traffic flow in route classification, since vehicular movement is determined by the depth of the snow and the availability of snow removal equipment. In those cases however, where snow blockage is regular, recurrent, and serious; the formula will be followed by the alpha symbol (T) in parenthesis.

(2) Flooding. The effects of flooding are also not normally considered in route classification except where flooding is regular, recurrent, and serious. In cases such as this, the formula will be followed by the alpha symbol (W) in parenthesis.

7. ROUTE RECONNAISSANCE OVERLAY

a. Route reconnaissance overlays are used in the preparation of both hasty and deliberate reconnaissance reports. The route reconnaissance overlay is an accurate and concise report of the conditions affecting traffic flow along a specified route and is the preferred method of preparing a route reconnaissance report.

b. An overlay normally satisfies the requirements of hasty route reconnaissance. If, however, more detail is required to support the reconnaissance, the overlay is supplemented with written reports describing critical route characteristics in more detail.

c. Route Reconnaissance Checklist

(1) The reconnaissance checklist is designed to insure that critical terrain data during route reconnaissance is not overlooked, and to aid in the preparation of reconnaissance reports.

(2) A checklist based on the characteristics of the area of operations is recommended. General items for consideration are:

(a) Identification and location of the reconnoitered route.

(b) Distance between easily recognized points both on the ground and the map.

(c) The percent of slopes and length of grades which are 7 percent or greater.

(d) Sharp curves whose radius of curvature is less than 25 meters (100 feet).

(e) Bridge military load classifications, limiting dimensions, and suitable bypasses.

(f) Locations and limiting data of fords and ferries.

(g) Route constrictions such as underpasses, which are below minimum standard and, if appropriate, the distances such restrictions extend.

(h) Locations and limiting dimensions of tunnels and suitable bypasses.

(i) Suitable areas for short halts and bivouacs which offer drive-off facilities, adequate dispersion, cover, and concealment.

(j) Areas of rock falls and slides which may present a traffic hazard.

8. VEHICLE CLASSIFICATION

a. In addition to routes and bridges having classification numbers, vehicles are also assigned a classification number which represents the effects the vehicles will have on routes and bridges.

b. Standard military self-propelled vehicles with a gross weight of over 3 tons and trailers with a rated payload of 1 1/2 tons and over, must carry a load class number. In cases where the vehicle's weight is an even 3 tons or less and the trailers whose rated payload is less than 1 1/2 tons, a load class may be assigned.

c. Vehicles are divided into two categories for classification purposes; single and combination vehicles. However, there are four classifications that are used; single, combination, temporary, and nonstandard combinations.

(1) Single vehicles. A single vehicle is any vehicle which has only one frame or chassis such as a tank or M923 truck. Single vehicles have the class number marked on a circular sign with lusterless black lettering on a lusterless forest green background. This sign is six inches in diameter and is posted or

installed on the right front of the vehicle on or above the bumper.

(2) Combination vehicles. A combination vehicle is a vehicle consisting of two or more single units which operate as one vehicle such as a prime mover pulling a semitrailer. The sign on the front of the combination vehicle (towing vehicle) has the letter "C" above the class number of the combination. In addition, each component carries its own class number posted on their right side.

(3) Temporary classification. Military vehicles may, at times, carry loads which are greater or less than their normal rated payloads. In this event, a temporary military load class number may be assigned to the vehicle thus increasing or decreasing the normal vehicle class number by an amount equal to the overload or underload in short tons.

(4) Nonstandard combinations. An example of a nonstandard combination is a single vehicle towing another vehicle at a distance less than 30.5 meters. If the sum of the vehicle's military load class numbers is less than 60, then the military load class of the nonstandard combination is nine-tenths (.9) the sum of the two class numbers. If, however, the sum of the two class numbers is 60 or over, the total sum represents the military load class number of the combination.

d. Vehicle load classification numbers are located in FM 5-36 Appendix "C". This appendix lists, by sections, the different types of vehicles and their appropriate classification numbers when empty, loaded for cross-country, and loaded for highway payloads.

REFERENCES

- 1. FM 5-36, Route Reconnaissance and Classification**
- 2. FM 4-9, Motor Transport**
- 3. TM 11240-14/2, Convoy Operations in a Guerrilla Environment**
- 4. FM 21-305, Manual for the Wheeled Vehicle Operator**