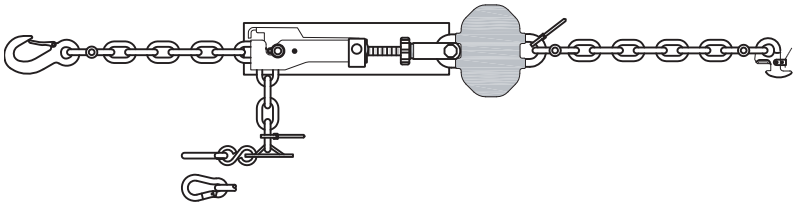
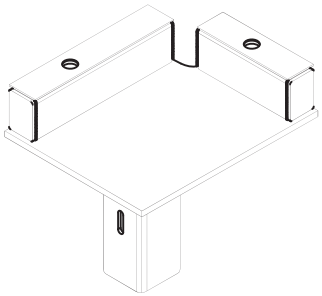
Fig. 88-E (New 9/07) (Concluded)

FAMILY OF MEDIUM TACTICAL VEHICLES (FMTV) WITH MOBILITY SHOP CONTAINER (MSC)



SKETCH 1



SKETCH 2

Item	No. of Pcs.	Description
A		Vacant
B	1 per truck	Mobility shop container (MSC) equipped with tie-down rings at the four top corners.
C	8 per truck/MSC	Tie-down assembly: consists of a 9/32-in. chain assembly with a hook at top end, chain anchor at bottom, a binder, and a Peck and Hale shock mitigator. Open hooks must be secured with wire or other suitable means. See Sketch 1.
D	4 per truck/shelter	Corner bracket (see sketch 2): mounted in the truck bed pocket, held with a locking pin. Provides lateral and longitudinal restraint by blocking the outside corners of the MSC and vertical restraint through the chain anchor holes and item “C.”

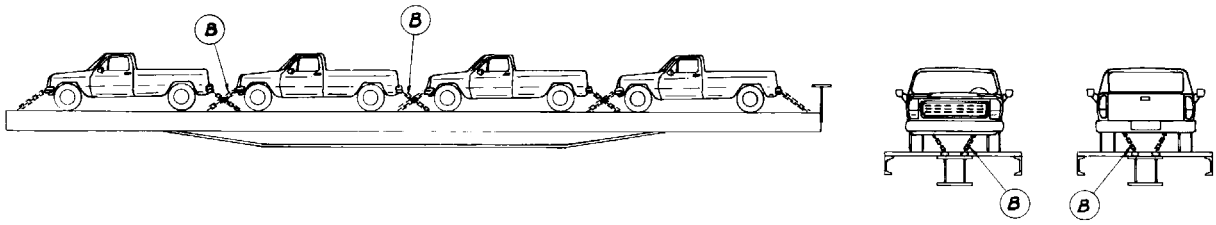
Notes and Additional Requirements:

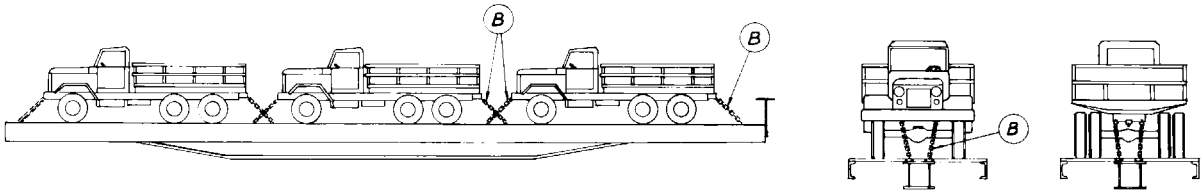
1. The FMTV are 2 1/2- and 5-ton trucks with a cab-over-engine design. The cargo bed versions are capable of accepting the MSC with the tie-down kits. The following model numbers have cargo beds: M1078, M1081, M1083, M1084, M1085, M1086, and M1093. The 2 1/2-ton truck has a single rear axle and is sometimes referred to as the light medium tactical vehicle (LMTV). The 5-ton truck has two rear axles and is sometimes referred to as the medium tactical vehicle (MTV).
2. The FMTV vehicle should be secured to the railcar using Fig. 88-A or Fig. 88-B.

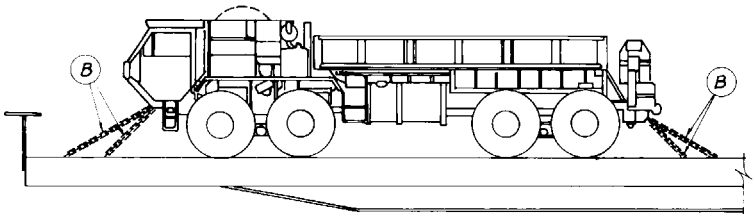
Reference the General Rules in Section No. 1 of the *Open Top Loading Rules Manual* for additional details.

Fig. 88-F (Rev 12/15)
(New 05/10)

MILITARY VEHICLES, ARMOURED, PNEUMATIC TIRES, NON-ARTICULATED, 75,850 LB OR LESS, SECURED WITH CHAINS—FLATCARS







Item	No. of Pcs.	Description
A		Brake wheel clearance: see General Rule 2 in Section 1.
B	4 each unit.	Alloy steel chain: 3/8-in. diameter, extra strength, minimum breaking strength of 27,000 lb, for vehicles weighing 9,300 lb or less.
	8 each unit.	Alloy steel chain: 3/8-in. diameter, extra strength, minimum breaking strength of 27,000 lb, for vehicles weighing over 9,300 lb to 18,500 lb inclusive.
	12 each unit.	Alloy steel chain: 3/8-in. diameter, extra strength, minimum breaking strength of 27,000 lb, for vehicles weighing over 18,500 lb to 27,950 lb, inclusive.
	4 each unit.	Alloy steel chain: 1/2-in. diameter, minimum breaking strength of 45,000 lb, for vehicles weighing 15,500 lb or less. Alloy steel chain: 1/2-in. diameter, extra strength, minimum breaking strength of 55,000 lb, for vehicles weighing 18,950 lb or less.
	8 each unit.	Alloy steel chain: 1/2-in. diameter, extra strength, minimum breaking strength of 55,000 lb, for vehicles weighing over 18,950 lb to 37,900 lb, inclusive.
	12 each unit.	Alloy steel chain: 1/2-in. diameter, extra strength, minimum breaking strength of 55,000 lb, for vehicles weighing over 37,900 lb to 56,850 lb, inclusive.
	16 each unit.	Alloy steel chain: 1/2-in. diameter, extra strength, minimum breaking strength of 55,000 lb, for vehicles weighing over 56,850 lb to 75,850 lb, inclusive.

IMPLEMENTED 12/2015

Fig. 88-F (Rev 12/15) (Concluded)
(New 05/10)

MILITARY VEHICLES, ARMOURED, PNEUMATIC TIRES, NON-ARTICULATED, 75,850 LB OR LESS, SECURED WITH CHAINS—FLATCARS

Notes and Additional Requirements:

1. Shippers should specify cars equipped with tie-down devices in the quantity shown in Item B when ordering specialized railway equipment. When necessary to use cars that do not have built-in chains and tensioning devices, chains and turnbuckles of appropriate size and strength may be used to secure vehicles. Load binders may not be used in lieu of turnbuckles to tension tie-down chains.
2. Vehicles must face in the same direction and be uniformly spaced the length of car to allow sufficient space at each end of the car and between vehicles for securement. Apply tie-downs parallel to each other at the same end of the vehicle and from the vehicle tie-down point to the car tie-down facility. Angle of tie-downs must be as close to 30° as possible.
3. Tie-down chains must be free from twisted or kinked links prior to their application to the vehicle.
4. Transmission shall be in neutral. Set the parking brake (if it is available and operational) to prevent the vehicle from inadvertently moving during the securement and unloading processes.
5. Vehicles equipped with air suspensions shall have the suspensions bled prior to application of chains to restrain the vehicle properly for transport. This is done to prevent air suspensions from leaking and losing pressure, causing the vehicle to lower significantly in transit and introduce an unsafe amount of chain slack.
6. Vehicles that have a mix of spring suspensions and air suspensions may leave the air suspension intact as long as there is at least one axle with a spring suspension on the front and back of the vehicle.
7. On HTTX-type chain assemblies, the open hook part of the double adjustable grab hook must be secured with wire or a nylon wire tie to prevent the hook from becoming disengaged from the chain link to which it is secured. On DODX-type chain assemblies, neither the claw hook at the base of the chain nor the slip hook engaging the shackle or tie-down provision on the vehicle needs to be secured with wire or nylon tie wrap.
8. Turnbuckles used to tighten chains must be wired or locked to prevent them from turning during transit unless the turnbuckles are equipped with self-locking devices.
9. When vehicles are shipped in a loaded configuration, the gross weight of the vehicle and cargo combined must be determined in order to ensure that the proper size and/or number of tie-downs are used to secure vehicles to the railcar.
10. Commercial Utility Cargo Vehicles (CUCV), when loaded with material, must be secured on flatcars equipped with cushioning devices.
11. Vehicles with rotating parts, if not equipped with a workable external locking device, must have the rotating portion secured to the body with two 3/8 in. 6 × 19 IWRC IPS wire rope, doubled (complete loop), one each side of vehicle. Protection must be applied at tie-down points when sharp edges are present. Secure each with two cable clips. Substitution of wire or banding is not authorized.

Reference the General Rules in Section No. 1 of the *Open Top Loading Rules Manual* for additional details.

IMPLEMENTED 12/2015

Fig. 88-G (New 08/12)

CAIMAN MULTI-THEATER VEHICLE (MTV), MINE-RESISTANT, AMBUSH-PROTECTED (MRAP), 72,000 LB OR LESS, SECURED WITH CHAINS—FLATCARS

Item	No. of Pcs.	Description
A		Brake wheel clearance: see General Rule 2 in Section 1.
B	12 each unit.	Alloy steel chain: 1/2-in. diameter, extra strength, minimum breaking strength of 55,000 lb, for vehicles weighing over 37,900 lb to 72,000 lb, inclusive.

Notes and Additional Requirements:

1. Shippers should specify cars equipped with tie-down devices in the quantity shown in Item B when ordering specialized railway equipment. When necessary to use cars that do not have built-in chains and tensioning devices, chains and turnbuckles of appropriate size and strength may be used to secure vehicles. Load binders may not be used in lieu of turnbuckles to tension tie-down chains.
2. Vehicles must face in the same direction and be uniformly spaced the length of car to allow sufficient space at each end of the car and between vehicles for securement. Apply tie-downs parallel to each other at the same end of the vehicle and from the vehicle tie-down point to the car tie-down facility. Angle of tie-downs must be as close to 30° as possible.
3. Tie-down chains must be free from twisted or kinked links prior to their application to the vehicle.
4. Transmission shall be in neutral. Set the parking brake (if it is available and operational) to prevent the vehicle from inadvertently moving during the securement and unloading processes.
5. On HTTX-type chain assemblies, the open hook part of the double adjustable grab hook must be secured with wire or a nylon wire tie to prevent the hook from becoming disengaged from the chain link to which it is secured. On DODX-type chain assemblies, neither the claw hook at the base of the chain nor the slip hook engaging the shackle or tie-down provision on the vehicle needs to be secured with wire or nylon tie wrap.
6. Turnbuckles used to tighten chains must be wired or locked to prevent them from turning during transit unless the turnbuckles are equipped with self-locking devices.
7. When vehicles are shipped in a loaded configuration, the gross weight of the vehicle and cargo combined must be determined in order to ensure that the proper size and/or number of tie-downs are used to secure vehicles to the railcar.
8. Vehicles with rotating parts, if not equipped with a workable external locking device, must have the rotating portion secured to the body with two 3/8 in. 6 × 19 IWRC IPS wire rope, doubled (complete loop), one each side of vehicle. Protection must be applied at tie-down points when sharp edges are present. Secure each with two cable clips. Substitution of wire or banding is not authorized.

Reference the General Rules in Section No. 1 of the *Open Top Loading Rules Manual* for additional details.