DoD and Railroads Partnering for Safe Military Loads

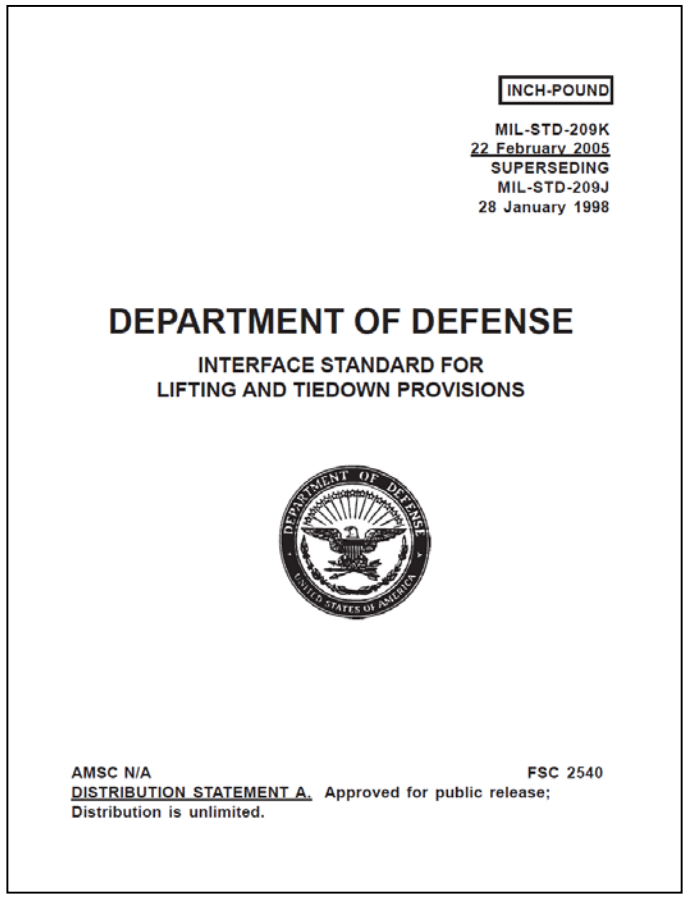
Michael Bartosiak

9 July 2019

Agenda

- Vehicle Testing
- Interaction with the AAR Open Top Loading Rules (OTLRs) Committee
- Rail Modal Instructions Supplement OTLRs
- When Guidance is Not Followed

Vehicle Testing – Lift & Tiedown Provisions



INCH-POUND

MIL-STD-209K
22 February 2005
SUPERSEDING
MIL-STD-209J
28 January 1998

DEPARTMENT OF DEFENSE

INTERFACE STANDARD FOR
LIFTING AND TIEDOWN PROVISIONS

AMSC N/A FSC 2540
DISTRIBUTION STATEMENT A. Approved for public release;
Distribution is unlimited.

MIL-STD-209

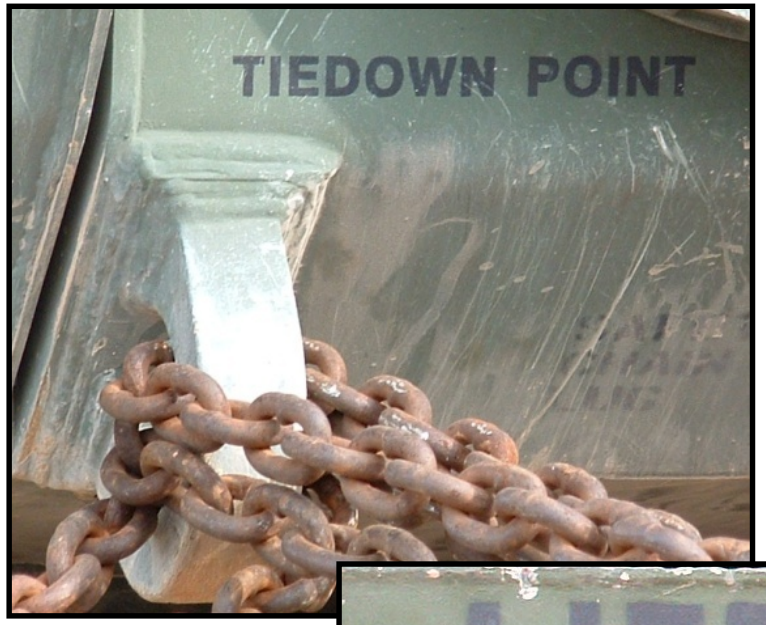
- Military-unique interface requirements for vehicle lift and tiedown provisions
- Specifies provision sizes and strength along with required pull testing
- Defines required identification of provisions

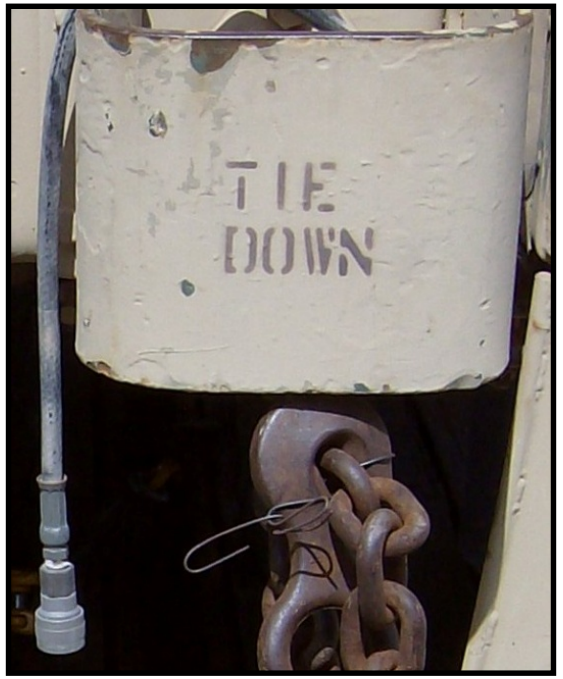
Vehicle Testing – Lift & Tiedown Provisions

MIL-STD-209 requires tiedown provisions pulled longitudinally, laterally, and vertically

The standard also requires crane proof testing of the lift provisions

Provision Identification





Vehicle Testing – Rail Impact Test

NOTICE OF CHANGE

NOT MEASUREMENT SENSITIVE

MIL-STD-810G
w/Change 1
15 April 2014

SUPERSEDING
MIL-STD-810G
31 October 2008

METHOD 526.1

DEPARTMENT OF DEFENSE
TEST METHOD STANDARD

ENVIRONMENTAL ENGINEERING CONSIDERATIONS
AND LABORATORY TESTS

AMSC N/A AREA ENVR

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Rail Impact Test is covered under MIL-STD-810, Test Method 526.1 which is essentially the same test required by the AAR OTLRs

Vehicle Testing – Rail Impact Test

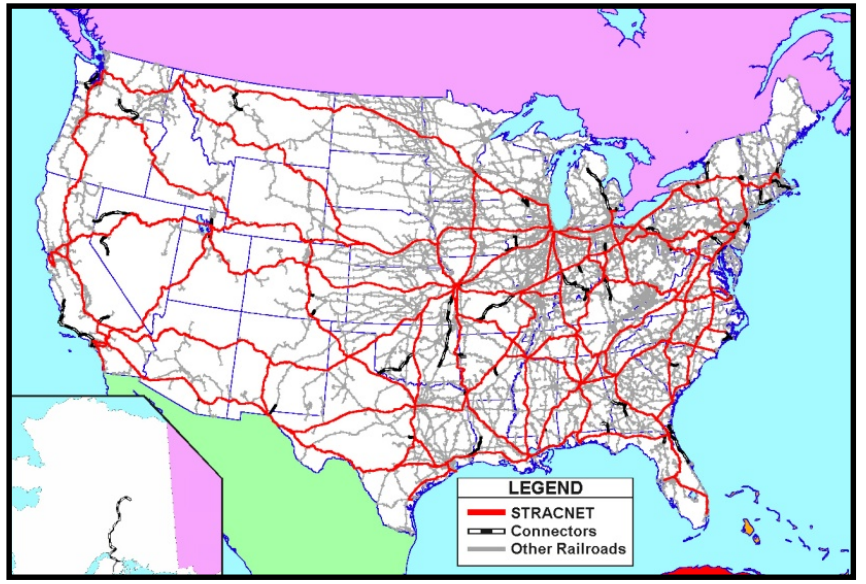
Vehicle Suspension and Tire Compression

Shock Loading on Chains

Vehicle Testing – Rail Impact Test

AAR Open Top Loading Rules

Military rail shipments move on commercial railroads in CONUS.



Members of the AAR Open Top Loading Rules Committee

BNSF RAILWAY
CSX TRANSPORTATION
KANSAS CITY SOUTHERN Lines
UNION PACIFIC
NORFOLK SOUTHERN
CN
TTX

Mr. Mike Bartosiak
(non-voting member)
DoD Representative

AAR Open Top Loading Rules

- Section 1 - General Rules for Loading All Commodities
- Section 2 – Metal Products, Including Pipe
- Section 3 – Machinery, Heavy Components, & Miscellaneous Commodities
- Section 4 – Archived Figures
- Section 5 – Forest Products & Miscellaneous Building Materials
- Section 6 – Military Equipment and Materiel
- Section 7 – Open Top Trailers and Containers

Hardcopy of rules are reprinted and issued every 3-4 years

AAR Open Top Loading Rules

PROVIDED BY AAR FOR RAILROAD CUSTOMER USE

Association of American Railroads
Safety and Operations

AAR Open Top Loading Rules Manual

SECTION 6
Rules for Loading
Military Equipment and Materiel

Click here to open Section 1—General Rules

Adopted by the
Former Master Car Builders' Association
as Recommended Practice, 1896
Advanced to Standard 1908

Published February 1, 1960
Republished December 2007

Published by the
Association of American Railroads
50 F Street NW, Washington, D.C. 20001-1564

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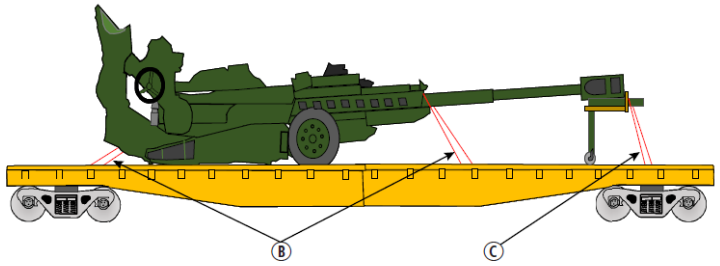
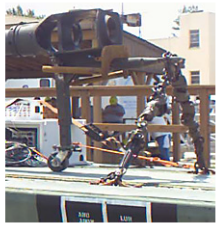
Fig. 1-B (Rev. 05/16)
(New 04/16)

HOWITZER, M777A2, 155 MM—FLATCARS



REAR TIE-DOWN

FRONT TIE-DOWN


THIRD WHEEL

Item	No. of Pcs	Description
A		Brake wheel clearance: see Section 1, General Rule 2.
B	4 each unit.	Alloy tie-down chain assembly: Minimum 3/8 in. with a minimum breaking strength of 27,000 lb. Locate two assemblies at the rear of the vehicle, and two at the front of the vehicle.
C	2 each unit.	Two lateral chains attached near the muzzle are optional.

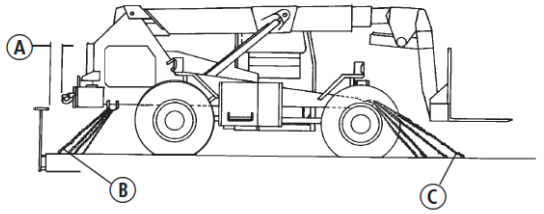
Notes and Additional Requirements:

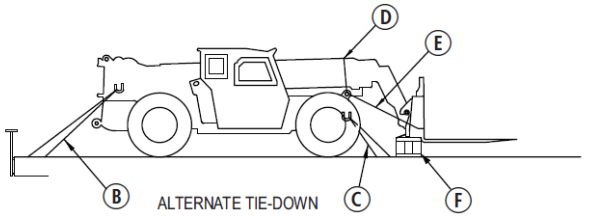
1. M777A2 must be in tow configuration (suspension bump stops removed and stabilizers stowed).
2. Third wheel (landing leg) under muzzle is required.
3. Plywood can be used to prevent metal-to-metal contact of the base of the M777A2 and the flatcar deck.
4. For more information about preparing the M777A2 for shipment and proper securement, contact the LW155 HELP LINE at 1-888-M777-411.

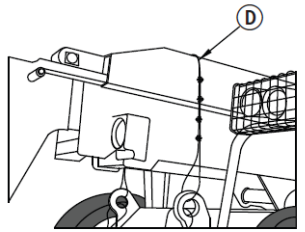
Reference the General Rules in Section 1 of the *Open Top Loading Rules Manual* for additional details.

Fig. 54-C (Revised 06/16)
(New 06/12)

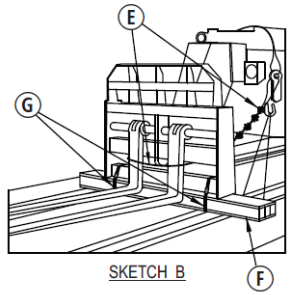
FORKLIFTS, VARIABLE REACH, 40,000 LB AND UNDER—FLATCARS, WITH CUSHIONING DEVICES, CENTER TIE-DOWN CHANNELS





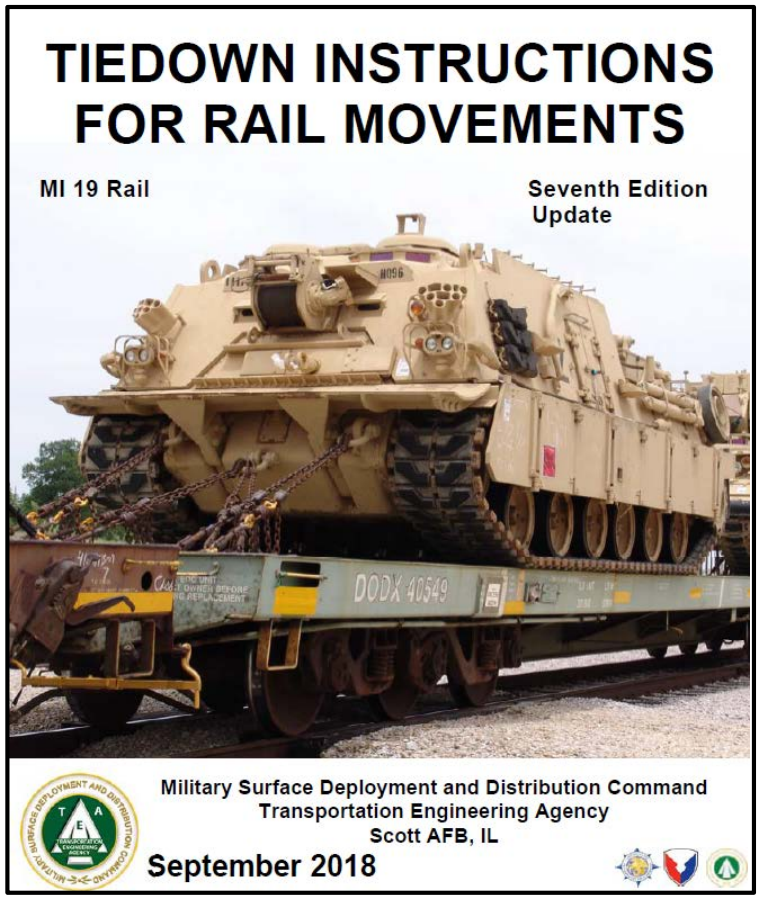


SKETCH A



SKETCH B

Rail Modal Instructions



- Supplements the AAR OTLRs Section 6 Figures
- Covers other general information like:
  - Safety checklist
  - Loading and Tiedown checklist
  - Practical loading tips
  - Proper use of spanners
  - Tips for moving battle damaged equipment

When Guidance is Not Followed: Armored Door not Properly Restrained

Frankfort, KS
June 2013

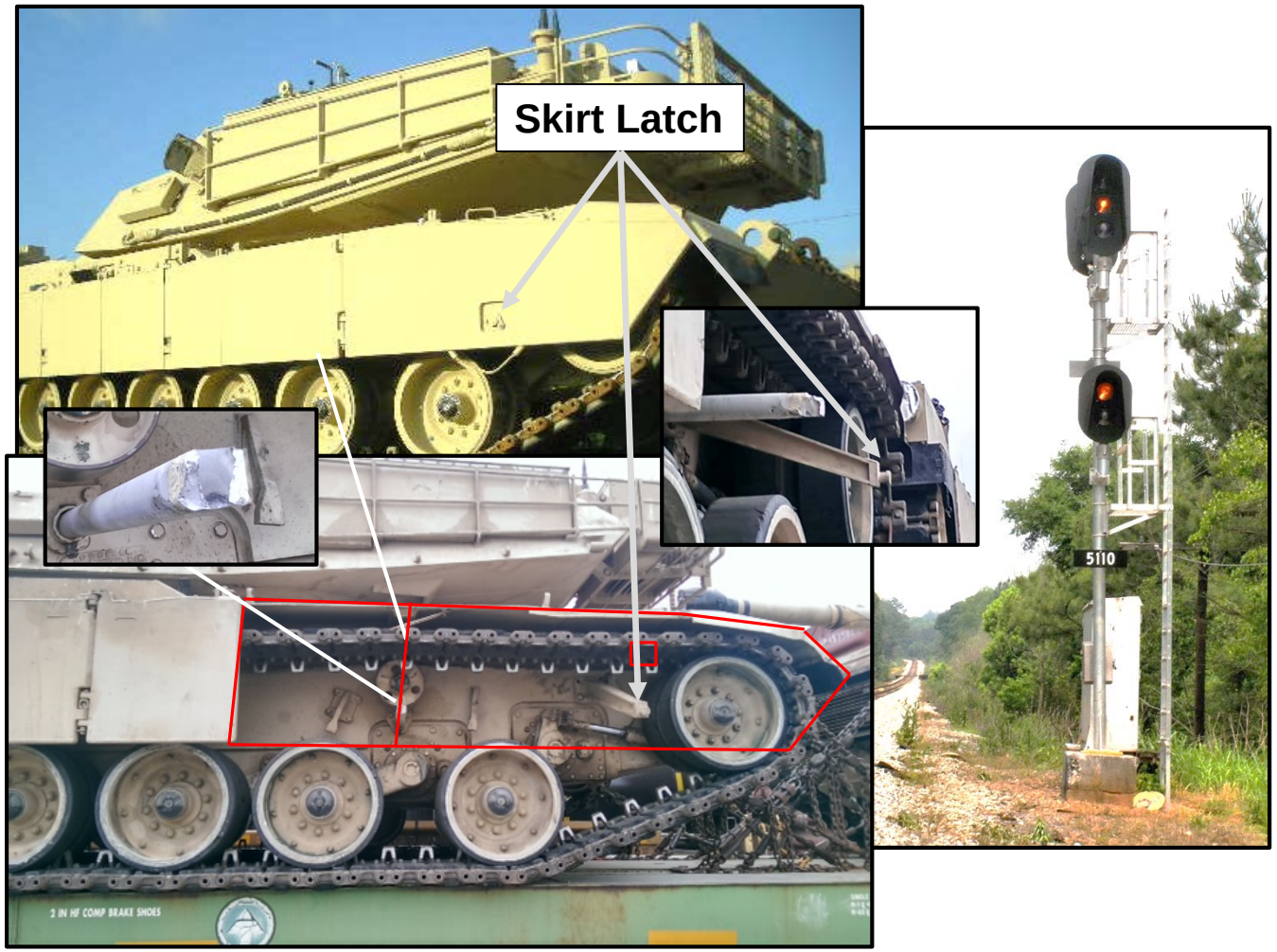
Armored door of a PLS truck fell off during rail transport and struck an electronic track switcher along the side of the track.

Published Procedures are not Always Followed

When Guidance is Not Followed: Vandals Mess with Side Skirts

Arizona
March 2015

M1 Side Skirts Not Secured



- M1 side skirt armor latch opened (likely due to vandals) allowing side skirt to swing out.
- The skirt took out three side train signals before being knocked off the tank.
- It took emergency repair teams four hours to replace or repair the damaged train signals.
- Due to the damaged signals, 8 trains were delayed and the major east/west track was shut down.

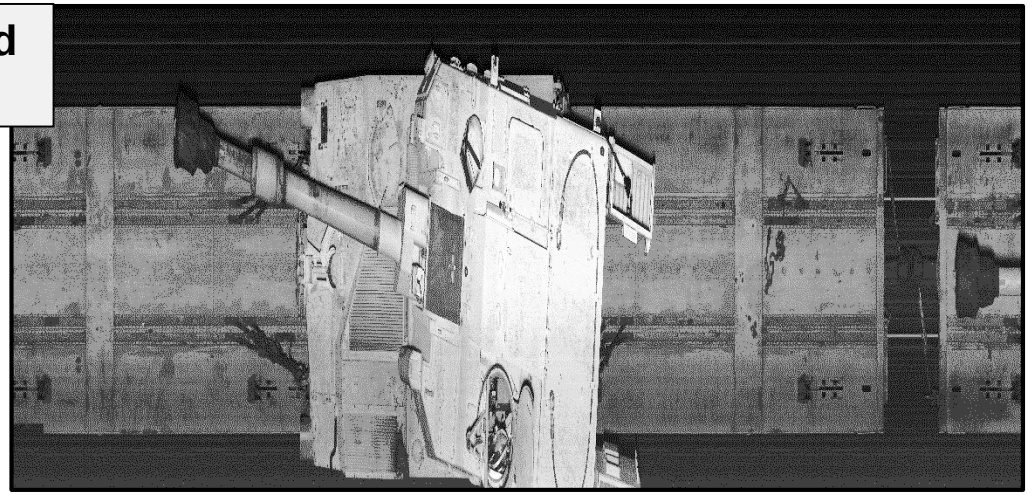
When Guidance is Not Followed: Gun Barrel Not Restrained

Barstow, CA
July 2018

The Stryker Mobile Gun System did not have its turret secured for transport (locks engaged). As a result, the turret moved while being rail transported and struck something, damaging the turret and gun barrel. Another Stryker vehicle sustained tire damage when being driven over a "dirty" railcar.

When Guidance is Not Followed: Paladin Not Properly Restrained

Overhead shot triggered by clearance detector



Defiance, NM December 2018

External Turret Lock on an M109 Paladin

Internal Turret Lock on an M109 Paladin

Questions?

MILITARY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND
TRANSPORTATION ENGINEERING AGENCY

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