

Secondary Cargo Loads for Rail Transport

Secondary loads occur when units desire to transport equipment, smaller vehicles, or smaller materiel handling equipment (MHE) on cargo areas of trailers or PLS flatracks. There is no guidance given in the Association of American Railroads (AAR) Open Top Loading Rules (OTLRs) or within TEA PAM 55-19 that specifically addresses how to handle secondary loads. There are; however, four aspects to consider:

- Has the vehicle or trailer been tested and approved to carry a payload for rail transport?
- Is the secondary cargo or vehicle within the approved payload capacity of the vehicle or trailer?
- Can the secondary cargo be adequately secured to the primary vehicle or trailer?
- Is the load on the vehicle or trailer still within the transport envelopes required?

First aspect to consider: determine the acceptable vehicle or trailer payload capacity for rail transport:

- 1) Check to see if there is a figure in the OTLRs for the vehicle or trailer that provides the tested and approved transport weight of the vehicle.

Certain vehicles or trailers may only be approved for rail transport at empty weights or at a weight that allows for transport of another empty trailer stacked on top of the trailer. For example, the M1000 Heavy Equipment Transport (HET) trailer (Section 6, Figure 88H) and the US Marine Corp M870A2E1 trailer (Section 6, Figure 88J) are only approved for rail movement empty (no payload) while the M872 trailers can be double stacked (Section 7, Figure 432 and 434).

- 2) If no figure exists in the OTLRs for the vehicle or trailer, contact the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) to verify the tested and approved transport weight of the vehicle or trailer in the transportability approval. Do this by e-mailing usarmy.scott.sddc.mbx.tea-dpe@mail.mil or calling 1-800-722-0727.

Common Army Vehicles or Trailers Approved Payloads per Transportability Approvals

Vehicle or Trailer	Approved Payload Weight
M870A1 Lowboy Trailer	No Payload
M870A3 Lowboy Trailer	24,950 lbs
M871A3 Step deck Trailer	45,000 lbs (when attached to prime mover)
M872A4 Flatbed Trailer	67,200 lbs (when attached to prime mover)
M1074A1/M1075A1 PLS Truck w/flatrack	32,250 lbs (40 PSI max concentration)
M1076 PLS Trailer	32,250 lbs (40 PSI max concentration)
M1120 HEMTT Truck w/flatrack	22,250 lbs (40 PSI max concentration)
Empty stacks of M1077 flatrack	4 high on PLS Truck/ 5 high on PLS Trailer
Empty stacks of M3 CROP flatracks	6 high on PLS Truck or PLS Trailer
2.5-Ton FMTVs (M1078A1 and M1081A1)	5,000 lbs
5-Ton FMTVs (M1083A1, M1084A1, M1085A1, and M1093A1)	10,000 lbs

- 3) If no figure or transportability approval exists, it must be assumed that the vehicle or trailer is only allowed to move by rail empty (no payload).

Second aspect, determine if the desired secondary load is under the approved vehicle or trailer payload capacity.

Third aspect, determine if the secondary cargo can be adequately secured to the primary vehicle or trailer:

- 1) The AAR OTLRs, Section 1, Rule 5.3.1 requires that all secondary cargo be secured as a "General Rules Load" meaning it must be restrained to 3 times the weight of the cargo longitudinally, 2 times the weight of the cargo laterally, and 2 times the weight of the cargo vertically.

- 2) Palletized or boxed cargo, as well as smaller wheeled or tracked vehicles, must be restrained using approved AAR restraint devices.

Approve AAR restraint devices typically consist of the appropriate size and strength steel banding or chain assemblies that are properly marked per AAR requirements. Steel banding requirements are described in AAR OTLR Section 1, Rule 17. Chain requirements are described in Section 1, Rule 21. Web strapping is generally used only to provide vertical restraint and requires the cargo to be secured longitudinally and laterally by other approved means. Floor blocking can also be used in conjunction with AAR approved restraint devices. For restraint calculations using both floor blocking and approved restraint devices, the AAR OTLRs Section 1, Rule 5.4.3 provides a table to assist you and determining whether you have the required restraint. To request a copy of the AAR OTLRs Section 1, General Rules, e-mail usarmy.scott.sddc.mbx.tea-dpe@mail.mil or call 1-800-722-0727.

- 3) If the secondary cargo is a vehicle, that payload vehicle needs to be equipped with sufficient size and strength tiedown provisions in order to properly restraint the vehicle for rail transport.

Not all MHE used by units have proper tiedown provisions on them (number, strength, etc). If they were purchased by the unit and not officially part of the Army inventory, it is likely that the MHE does not have adequate tiedown provisions for rail transport.

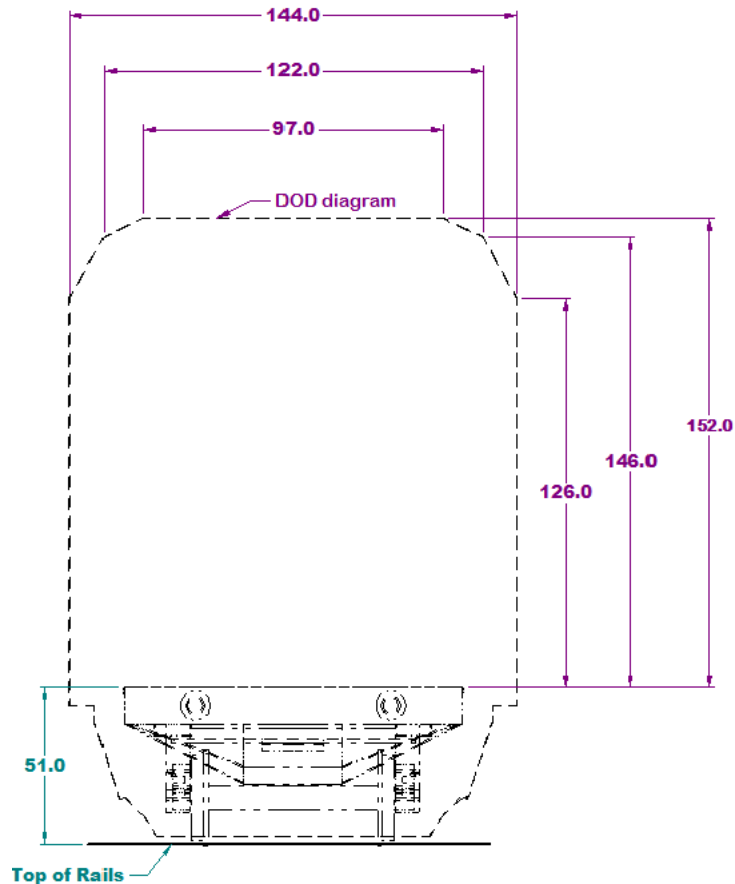
- 4) To properly restrain a vehicle as secondary cargo, the applied restraints (chains) cannot contact any part of the vehicle except the tiedown provision on the vehicle and the cargo tiedown provision on the primary vehicle or trailer.

This is to ensure the restraint can be properly tightened and that parts of the secondary vehicle (payload) will not yield, break off or become damaged during rail transport.

- 5) If the secondary cargo is a wheeled vehicle, that vehicle must have properly inflated tires.
- 6) In general, secondary cargo that is equipped with International Organization for Standardization (ISO) corner fittings that are secured to ISO twist locks on the primary vehicle or trailer will meet the requirements of the General Rules Load as described in paragraph 1.
- 7) If the secondary cargo is ammunition or explosives, contact the Explosive Safety Engineering Division within the Defense Ammunition Center at McAlester, OK for guidance. The Defense Ammunition Center can be reached at usarmy.mcalester.usamc.mbx.dac-det@mail.mil.

Finally, determine if the load on the vehicle or trailer is within the required rail transport envelope:

- 1) The originating carrier should be contacted to inspect and measure the secondary loads to ensure they still fit within the required rail clearance envelopes for the rail routes for your particular move. Typically any load more than 11 ft wide or 11 ft tall will be checked by the originating rail carrier.
- 2) Having smaller vehicles or forklifts properly secured to flatracks on the back of PLS trucks can create very high loads. The strategic rail routes typically have to adhere to the DOD diagram (dimensions in inches):



Other general tips:

When securing secondary loads, it is a good idea to have the originating carrier coordinate with all the rail carriers that will handle the rail route to approve the restraint of the secondary load prior to loading. The AAR specifically requires in Section 1, Rule 1.3.1 that the shipper must get authority from the originating carrier for General Rules loads. Acceptance of the load by the originating rail inspectors will not ensure that subsequent receiving carriers will accept the load and this could cause the load to be sidelined and delayed.

Secondary loads are allowed by the AAR, but a lot of loading requirements have to be met and getting rail carrier(s) approval requires rail load pre-planning. Unless the secondary cargo is a loaded ISO

container or the equipment has ISO corner fittings, it is not a trivial procedure to determine if a secondary load is allowable and will be properly restrained. Most military vehicles or trailers are designed to carry payload for highway transport, which requires much less restraint than rail transport restraint requirements for a General Rules Load.

If an approved secondary load is going to be used multiple times over multiple years, consider having the particular combination rail impact tested so that a specific figure for that load is generated and placed in the OTLRs, Section 6 for Military Equipment and Materiel. That way, as long as the load is restrained per the guidance given in the figure, no rail carrier or inspector can question the load. A rail impact test can either occur at your home rail yard or performed at an Army Test Center (if funding, vehicle, and cargo is provided). AAR OTLR committee members must be present and the rail impact test must be properly performed per OTLR, Section Rules 35 and 36 or MIL-STD-810, Test Method 526. After successful completion of a rail impact test, the committee always has the option to require monitored shipments before generating a figure. For assistance in contacting the OTLR committee members to attend the rail impact, contact SDDCTEA at usarmy.scott.sddc.mbx.tea-dpe@mail.mil or call 1-800-722-0727.