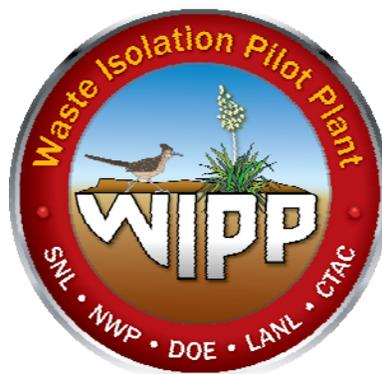


WP 08-PT.04
Revision 8

TRUPACT-II/HalfPACT Trailer Operation and Maintenance Manual

Cognizant Section: Packaging and Information Systems

Approved by: Todd Sellmer



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CHANGE HISTORY SUMMARY

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
8	10/28/2015	<ul style="list-style-type: none">• General clarification and editorial changes• Added change history summary• Changed references from line items to a table

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1.0 INTRODUCTION

The Transuranic Package Transporter (TRUPACT)-II/HalfPACT Trailers (trailer) were designed to transport up to three TRUPACT-IIIs, HalfPACTs or any combination of each, hereafter referred to as packagings or packages. The packages are shipped between various U.S. Department of Energy (DOE) sites are within the 48 contiguous states.

This document is intended to provide guidance for operators of the trailers and associated components. With the exception of Section 3.2, Loading the Trailer, this document pertains to the trucking contractors in its entirety. Sections pertaining to the general operation of the trailer, trailer loading, moving and parking, and tiedown assemblies are intended as guidance for waste handling personnel at the WIPP Site. Individual operating procedures may be used in place of this document, as long as the intent and requirements of this document are met, and approved by the Trailer Cognizant Engineer.

1.1 Description

The tractor/trailer combination (including Packages) is designed to meet existing state and federal requirements. These requirements cover the length, width, height and weight of the tractor/trailer combination, as well as all applicable U.S. Department of Transportation (DOT) requirements in effect.

Major components of the trailer are briefly described in the following subsections.

1.2 Trailer Chassis

The trailer chassis is a drop-frame, dual axle design specialized to transport up to three Packages. The chassis gooseneck has a standard 2-inch diameter kingpin set 18 inches (in.) from the trailer front sill. The gooseneck design allows an 88-inch minimum tractor swing clearance.

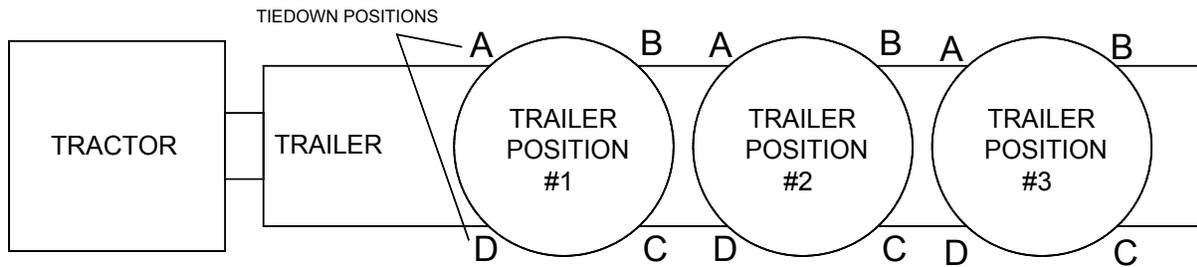
Placard holders are installed on each rail side and on the front and rear sills. The placard assemblies have the identification symbols required by the DOT for transporting the loaded Packages.

1.3 Tiedown Assemblies

Each Package is secured to the trailer by four tiedown assemblies. The physical location of the tiedowns on the trailer chassis is shown in Figure 1, Trailer Tiedown Locations. Subsections 8.2 through 8.4 give procedures for assembly/maintenance of the tiedowns.

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Figure 1. Trailer Tiedown Locations



1.4 Axles and Suspension

The trailer has two axles. Each axle has a 77 ½-inch track, oil seals, motor wheel outboard centrifuge brake drums, 10-stud outboard cast steel hubs, and automatic slack adjusters.

The axles are mounted to the chassis using the suspension manufacturer's procedures. The air suspension uses air supplied by the tractor/trailer air system. This pressurizes a separate reservoir for the air springs. An air control system adjusts the ride height and the air pressure needed for varying loads. This suspension provides a cushioned ride throughout the range of loads and side-to-side and axle-to-axle load equalization.

1.5 Tires and Wheels

The trailer has nine 22.5 x 8.25-15° drop-center aluminum wheels (eight mounted plus one spare) fitted with 255/70 R 22.5 tires, although the spare tire and mounting assembly may be removed at the carrier's discretion. Standard 20 x 1572 (RH) wheel studs and standard outer lug nuts are used to mount the dual wheels. A hubodometer is installed on the curb side front axle.

1.6 Brake System

Spring brake air chambers operate the brakes. A two-line air system mechanically actuates the brakes. The braking system has an emergency relay valve fitted with reservoir hoses and standard color-coded "glad-hand" air hose couplings. The brake shoes have non-asbestos linings.

The trailer has an antilock braking system (ABS) which works with the standard braking system incorporating electronics to monitor and control wheel speed during braking.

1.7 Lights

The trailer lighting system meets or exceeds the requirements of state and federal regulations.

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1.8 Landing Gear

Two manually actuated (crank handle), synchronized landing gear supports with standard sand shoes are mounted to the trailer chassis. The sand shoe is approximately 12 in. above the ground during transportation. The landing gear has approximately 16 in. of travel and can support a fully loaded trailer.

The landing gear has two speeds of operation, low and high. The low speed is used for raising and lowering under heavy loads; the high speed is used for raising and lowering the landing gear under lighter loads.

1.9 Special Tools and Equipment

The basic trailer operates without special equipment or tools with the exception of a Go/No-Go gauge (feeler gauge) used to verify the trailer tiedown assemblies are exerting the correct preload on the packaging. The Go/No-Go gauge verifies the gap between the compression plate and compression block on Cam-Handle Tiedowns (see Figure 2, Cam-Handle Tiedown Assembly), and between the compression plate and the top block on Screwjack Tiedowns (see Figure 3, Screwjack Tiedown Assembly). Refer to Subsection 3.4 for instructions on use of Go/No-Go gauges. The trailer is equipped with a tool box which carries a spare tiedown assembly. Other items that may be carried in the tool box include: a lug wrench with handle, wrenches, and various tools.

2.0 REFERENCES

REFERENCES		
DOCUMENT NUMBER AND TITLE	BASELINE DOCUMENT	REFERENCED DOCUMENT
Title 49 Code of Federal Regulations (CFR) Part 392, <i>Driving of Commercial Vehicles</i>		✓
49 CFR Part 396, <i>Inspection, Repair, and Maintenance</i>		✓
Drawing 162-L-001-W2, <i>TRUPACT-II Fleet Spread Axle Trailer Assembly</i>	✓	
Drawing 162-L-001-W3, <i>TRUPACT-II Fleet Spread Axle Trailer Frame and Structure</i>	✓	
Drawing 162-L-002-W Series, <i>CH Packaging Trailer U-Bolt/Cam Handle Tie-Down Assembly</i>	✓	
Drawing 162-L-005-W Series, <i>CH Packaging Trailer Screwjack Tie-Down Assembly</i>	✓	

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3.0 GENERAL OPERATION

3.1 Pre-Trip Checks

WARNING

Failure to allow the system pressure to stabilize before moving the trailer can damage the trailer air suspension system, brake system, and tire treads.

WARNING

To prevent damage to the trailer, the distance from the bottom of the front sill at the fifth wheel interface to the ground must be verified to be 47 in. (+1", -0") prior to coupling to the trailer.

WARNING

It is the responsibility of the driver to ensure all hazardous material placards are properly secured before moving the trailer. The rear placard shall be secured using the latch bolt with the cotter pin installed in the latch bolt. Failure to ensure placards are properly secured will result in loss of the placard and could cause damage to equipment and injury to persons.

Preoperational checks shall be performed by the carrier/driver (49 CFR §392.7, "Equipment, Inspection and Use," and 49 CFR §396.13, "Driver Inspection").^{1, 2}

Before using the trailer, the carrier/driver shall perform the basic driver vehicle inspection checks to include a review of the prior Post-Trip Inspection Report (49 CFR §396.11, "Driver Vehicle Inspection Reports").³ Operators shall perform the manufacturer's recommended equipment checks on brakes, lights and reflectors, suspension, landing gear, bearing lubrication levels, tires and wheels, and coupling devices. Operators shall correct any signs of low oil level, excessive wear, damage, and/or malfunction before using the unit. Also, the operator shall perform a pre-use visual inspection of structural members of the chassis, kingpin and tiedown attachment points for signs of weld cracks, corroded metal, deflections, deformations, or other unusual conditions. The operator shall also inspect the joints between the primary and secondary structural members and report any deficiencies to the Waste Isolation Pilot Plant (WIPP) Transportation Scheduler before using the trailer.

Prior to moving the trailer, the operator shall allow sufficient time (approximately two minutes) for the air pressure to stabilize after attaching the tractor air supply to the trailer. The air system should be fully charged and the air suspension fully inflated

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before picking up the trailer with a hydraulic fifth wheel, or cranking up the landing gear.

3.2 Loading the Trailer

NOTE

When loading packages onto the trailer, accurate placement of the package is important for proper tiedown operation. Improper package placement can result in movement of the package and loss of the required tiedown tension. When loading packages onto a trailer, the forklift operator is required to use a spotter at all times. Packages should be placed on the trailer so the packaging lugs are aligned with tiedown brackets on the trailer. The package should be adjusted such that, when installed, the tiedown bolt(s) are perpendicular to the top face of the trailer tiedown brackets (e.g., the deviation from perpendicular over the length of the tiedown bolt[s] in any direction should not exceed ¼-inch).

Before loading the packages onto the trailer, determine and record the gross weight of each package. This data is needed for the loading arrangement process. The trailer is designed to transport up to three packages with a maximum gross unit package weight of 19,250 lbs each. The total weight of the tractor, trailer, and payload shall not exceed 80,000 lbs. If the total weight of the tractor, trailer and payload is greater or equal to 77,500 lbs, the shipment should be scaled to ensure that the 20,000 lb trailer axle weight limitation and 80,000 lb gross weight limitation are not exceeded. When loading packages on a trailer, the options shown in Table 3.2, Package Trailer Loading Sequence, shall be used.

When loading packagings on a trailer, or loading a payload into packaging that is already on the trailer, the following apply:

- Packages having a gross weight difference (heaviest to lightest) of 1,000 lbs or less can be considered equal and do not require a specific sequence for positioning on the trailer.
- Packages having a gross weight difference (heaviest to lightest), greater than 1,000 lbs shall be positioned on the trailer as follows:

Table 3.2 – Package Trailer Loading Sequence

Table 3.2 CH Package Trailer Loading Sequence				
<i>TRAILER FRONT</i>	1. Heaviest	Medium	Lightest	<i>TRAILER REAR</i>
	2. Heaviest	Lightest	None	
	3. Heaviest	None	None	

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3.3 Tiedown Types

There are two tiedown types: a screwjack tiedown and a cam-handle tiedown. The different tiedown types are illustrated in Figure 2 and Figure 3. Each type has different operating instructions which are contained in Sections 4.0 and 5.0.

3.4 Go/No-Go Gauge Procedures

Go/No-Go gauges are used to verify the gap between the compression plate and the compression block on Cam-Handle Tiedowns (see Figure 2), and between the compression plate and the top block on Screwjack Tiedowns (see Figure 3). When the tiedown is properly tensioned, the thin end of the gauge (0.07-inch thick) will slide between the compression plate and the compression block (cam handle) or top block (Screwjack), as applicable, whereas the thick end (0.10-inch thick) will not, thus ensuring the gap is between 0.07 in. and 0.10 in. Note that an additional check is required in Subsection 5.2.6 to verify that the space between Screwjack Tiedowns top and bottom blocks is between 3 in. and 3 ¼ in.

NOTE

To avoid interference with the compression plate guide pin on the Screwjack tiedown, the Go/No-Go gauge must be inserted approximately ½-inch to either side of the centerline of the compression plate.

All measurements shall be conducted with the trailer on level ground using an approved Go/No-Go gauge. All measurements shall be taken between the hex bolts or U-bolt legs. To measure the gap between the compression plate and the compression block, insert the thin (0.07-inch) end of the gauge between the compression plate and the compression block at the center of the tiedown. Continue to insert the gauge until the 0.10-inch section of the gauge reaches the compression plate and/or compression block. If the thick (0.10-inch) end of the gauge can enter the gap completely without the use of force, the tiedown is **out of adjustment**. Gauges that are worn shall not be used. The Go/No-Go gauge shall not be altered from the requirements of the referenced drawings in any manner (Figure 4, Required dimension for Proper Installation).

4.0 CAM-HANDLE TIEDOWN OPERATION

4.1 Cam-Handle Tiedown Installation on Packaging

4.1.1 Raise the U-bolt and place it over the packaging tiedown lug.

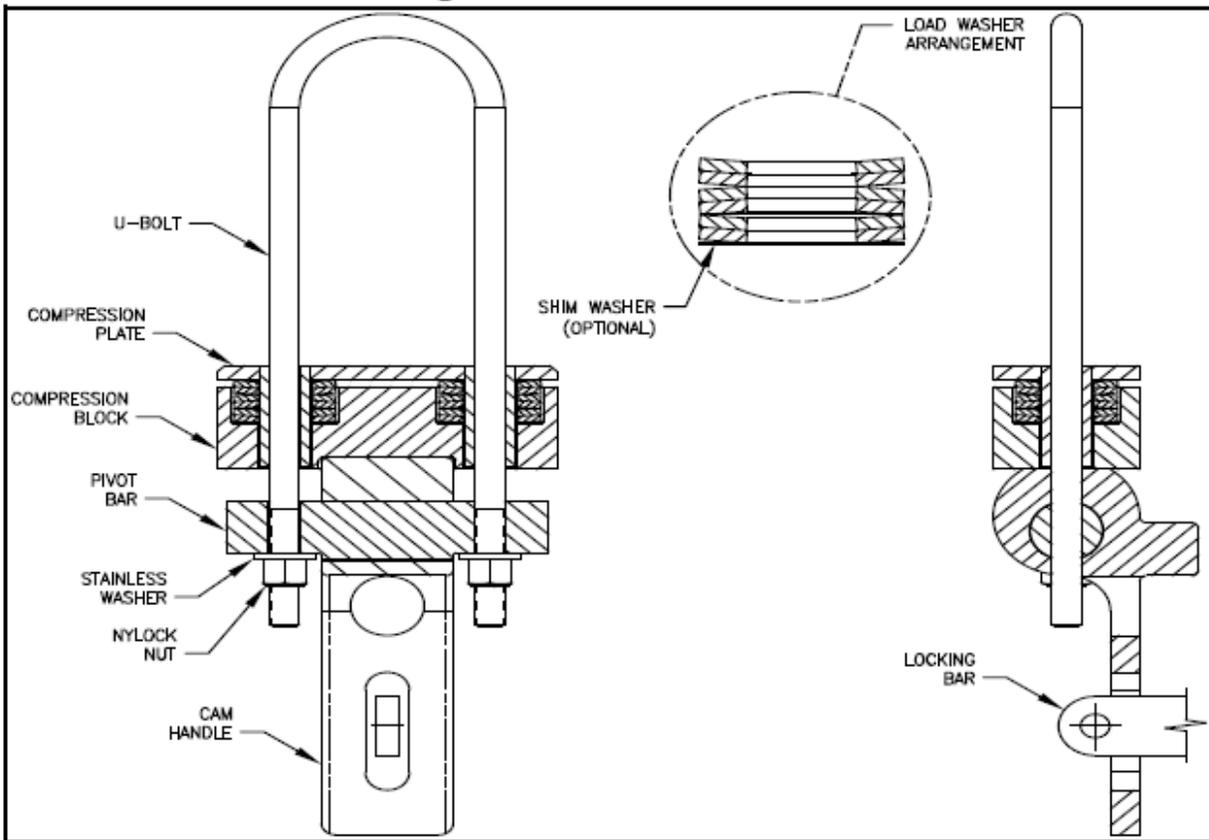
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NOTE

Installation of the spring pin, padlock, or other device used to secure the Cam-Handle to the trailer locking tab, may take place at any point after performing step 4.1.2.

- 4.1.2 Rotate the Cam-Handle to the DOWN position.
- 4.1.3 Verify that the packaging is properly positioned on the trailer, with tiedown bolts perpendicular to trailer tiedown brackets.
- 4.1.4 Adjust position of the packaging if necessary.
- 4.1.5 Check the gap between the compression block and the compression plate using the Go/No-Go gauge (see Subsection 3.4).
- 4.1.6 Tighten the adjusting nuts until the gap is between 0.07 in. and 0.10 in. (the U-bolt thread pitch gives 0.077 in. per revolution).

Figure 2. Cam-Handle Tiedown Assembly



- 4.1.7 If not already performed, install the spring pin, padlock, or other device to secure the Cam-Handle to the trailer locking tab.

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4.2 Cam-Handle Tiedown Removal from Packaging

NOTE

Subsection 4.2.1 and 4.2.2 are interchangeable.

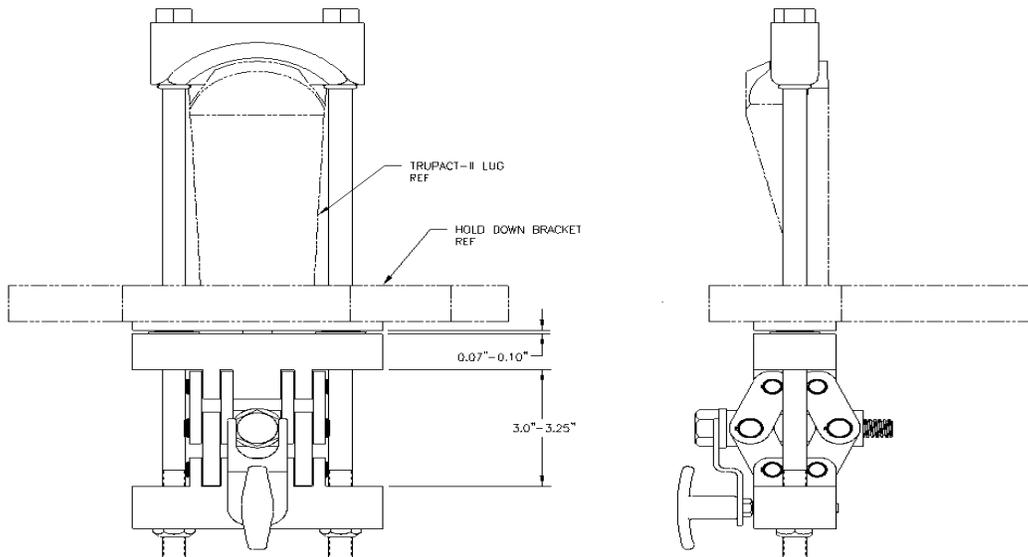
- 4.2.1 Remove the spring pin, padlock, or other device used to secure the Cam-Handle to the trailer locking tab.
- 4.2.2 Loosen the adjusting nuts.
- 4.2.3 Rotate the Cam-Handle to the UP position.
- 4.2.4 Raise the U-bolt and remove it from the packaging tiedown lug.

5.0 SCREWJACK TIEDOWN OPERATION

5.1 Screwjack Tiedown Installation on Trailer

- 5.1.1 Loosen the ACME bolt to spread the front and back ACME bolt blocks apart.
- 5.1.2 Remove the two ½-inch Nylock™ lock nuts from the tiedown hex bolts.
- 5.1.3 Place the tiedown upright on a flat surface as shown in Figure 3.

Figure 3. Screwjack Tiedown Assembly



- 5.1.4 Unscrew the hex bolts from the bottom block AND remove the top bracket and the hex bolts being careful not to lose the load washers.

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- 5.1.5 Hold the tiedown assembly under the trailer tiedown plate with the lock handle assembly to the outside of the trailer and slide the hex bolts through the trailer tiedown plate, compression plate, load washers, and top block.
- 5.1.6 Thread the bolts into the tiedown bottom block.
- 5.1.7 Verify both hex bolts have approximately the same amount of thread protruding through the bottom block.
- 5.1.8 Install the Nylock™ nuts to lock the bolts in place.

5.2 Screwjack Tiedown Installation on Packaging

- 5.2.1 Before installing the Screwjack Tiedown on the packaging, perform the following:
- Ensure snap rings are in place on each end of each linkage pin.
 - Ensure parts move freely.
 - Clean parts as needed in accordance with Subsection 8.2.
 - Lubricate moving parts as needed in accordance with Subsection 8.2.

WARNING

When tensioning Screwjack Tiedowns: **Fingers and objects must be kept clear of the tiedown linkage.** Parts should move freely. If binding of moving parts occurs, investigate the cause and correct. Tensioning the tiedown **MUST NOT** continue until the problem is corrected.

NOTE

The distance between the bottom of the packaging and the top of the tiedown lug can vary based on the flatness of the packaging bottom surfaces. These instructions do not compensate for such variations, and some adjustments to the tiedowns may be necessary as different packages are placed on different trailer positions.

- 5.2.2 Loosen the ACME bolt enough for the top bracket to clear the packaging tiedown lug.
- 5.2.3 Raise the top bracket and place it over the packaging tiedown lug.
- 5.2.4 Adjust the ACME bolt until the distance between the top block and the bottom block is at least 3 in., but not more than 3 1/8 in. It may be necessary to adjust

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the hex bolts counter-clockwise to achieve this step. This sets the tiedown at the low end of the operating range. The ACME bolt now has full travel to compress the load washers. A tape measure or other uncalibrated measuring device may be used for this measurement.

- 5.2.5 Adjust the two hex bolts evenly until the top side of the compression plate begins to contact the bottom side of the trailer tiedown plate. Do not use the ACME bolt to eliminate gap between compression plate and trailer tiedown plate, as this will eliminate the travel required to compress the load washers. Do not use hex bolts to achieve Go/No-Go gap between compression plate and compression block.

NOTE

The ACME bolt travels through a 7/8-inch long spacer designed to prevent the distance between the top and bottom blocks from exceeding 3 ¼ in. Tightening of the ACME bolt **MUST NOT** continue once the front and back blocks contact the ACME spacer.

- 5.2.6 Tighten the ACME bolt until space between top and bottom tiedown blocks is at least 3 in. AND not greater than 3 ¼ in. while the gap between the compression plate and the top block is between 0.07 in. and 0.10 in. (see Go/No-Go Gauge Procedures, Subsection 3.4).

NOTE

If adjustments to the tiedown hex bolts are necessary to achieve the tiedown dimensional requirements, it is recommended the pressure be released from the tiedown hex bolts by loosening the ACME bolt. To maintain equal loading on the top bracket, it is important that both of the tiedown hex bolts be adjusted equally.

The distance of travel between no load on the load washer assembly and full load on the load washer assembly is 0.144 in. (slightly more than 1/8 in.).

One and one-half turns of the tiedown hex bolts give slightly less than 1/8 in. of travel.

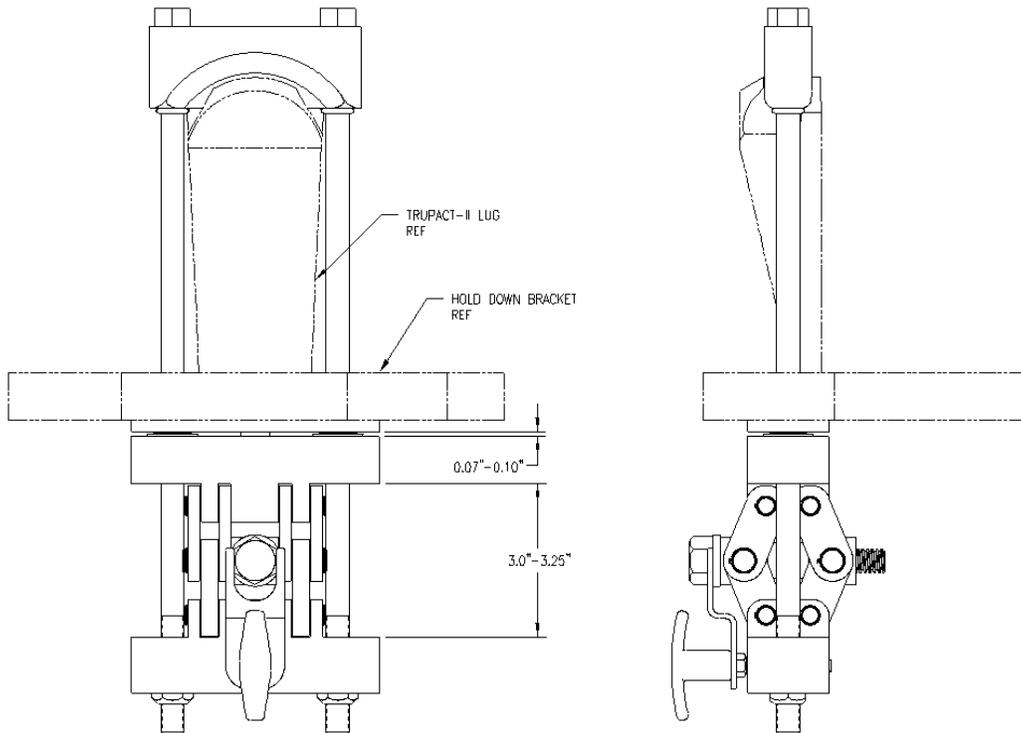
- 5.2.7 Ensure that the Nylock™ nuts are fully seated against the bottom block, and that each hex bolt has approximately the same number of threads protruding through the locknut. At a minimum, the bottom of the tiedown hex bolts must be flush with the bottom of the locknut to prevent inadvertent loosening of the locknut.
- 5.2.8 Adjust the ACME bolt so the flat sides of the head are vertical.
- 5.2.9 Pull the lock handle assembly and rotate it over the ACME bolt head. This step also applies to trailer positions without TRUPACT-IIs or HalfPACTs.

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5.3 Screwjack Tiedown Removal from Packaging

- 5.3.1 Pull the lock handle assembly and rotate it off the ACME bolt head.
- 5.3.2 Loosen the ACME bolt enough for the top bracket to clear the packaging tiedown lug.
- 5.3.3 Raise the top bracket and remove it from the packaging tiedown lug.
- 5.3.4 Set the top bracket onto the trailer bracket below the package tiedown lug. Locate tiedown as far to outer side of trailer as possible to allow maximum access when placing packaging on the trailer.

Figure 4. Required dimension for Proper Installation



6.0 OVER-THE-ROAD OPERATION

Operation of the combined tractor/trailer should be done with approved procedures for using over-the-road vehicles (49 CFR §396.7, "Unsafe Operations Forbidden").⁴

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When TRUPACT-II packages are in place, the trailer has a high profile. Therefore, it should not be towed when load and road conditions might cause a rollover.

The trailer has an 88-inch gooseneck clearance. To get the best braking and handling capabilities of the tractor/trailer and to reduce equipment damage, DO NOT operate the trailer with the fifth wheel positioned further than 12 in. forward of the centerline of the tandem axles.

7.0 POST-TRIP CHECKS

When the trailer is in use, the carrier/driver shall complete a post-trip inspection for the items discussed in Subsection 3.1 at the end of each day. Inspection and reporting shall be according to 49 CFR §396.11.³

8.0 PREVENTIVE MAINTENANCE

This section supplements the manufacturer's maintenance manuals but does not replace them. It describes the preventive maintenance that shall be done by a trucking contractor, a trailer service center, or automotive maintenance personnel. More information may be found in the service manuals for each component.

8.1 Chassis

The trailer chassis routine maintenance is managed by the carriers. However, the frame shall be inspected by all operators for weld cracks, evidence of corrosion, and/or damage on a regular basis (Subsection 3.1 and Section 7.0). The operator shall report any evidence of weld cracks or other abnormalities to the WIPP Transportation Scheduler before using the trailer. If areas on the chassis show signs of significant corrosion and/or paint chipping, these shall be re-primed and repainted by the carrier.

Belting material ("Fabreeka" or approved equivalent) is to be tightly bound to the trailer chassis, and should show no signs of wear or separation. If the belting material shows signs of separation, it shall be reattached to the chassis with an approved rubberized contact cement. Belting material showing signs of excessive wear shall be replaced.

8.2 Tiedown Assemblies - General

Inspect and service the tiedowns for safe and reliable operation. If tiedown components need repair or replacement, verify the new parts have been approved by Nuclear Waste Partnership LLC (NWP) Quality Assurance before use. Perform the following as needed to service the tiedowns:

- Disassemble the unit.
- Inspect the parts visually.
- Remove foreign material. (Use a low chloride solvent.)
- Inspect the bolts visually for defects (i.e., cracks, plastic deformation).

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- Replace damaged bolts.
- Lubricate tiedown assemblies as follows:
 - Cam-Handle Tiedown - lubricate threaded areas of tiedown Cam-Handles, directly above locknuts, with nickel bearing lubricant. **DO NOT** lubricate the stainless steel load washers.
 - Screwjack Tiedown - lubricate all moving parts with multipurpose dry lubricant. **DO NOT** lubricate the stainless steel load washers.

8.3 Cam-Handle Tiedown Assembly

Perform the following:

8.3.1 Position the compression block counterbore side up.

8.3.2 Install six disk springs in each counterbore in the sequence below (see Figure 2):

- 2 up
- 2 down
- 2 up

8.3.3 Install the compression plate spring guides through both stacks of the disk springs.

8.3.4 Place the pivot shaft into the Cam-Handle.

8.3.5 Slide a U-bolt through the two slots in the trailer tiedown bracket assembly.

8.3.6 Place the compression block assembly over the U-bolt ends and into position.

8.3.7 Place the Cam-Handle and pivot shaft assembly over the U-bolt ends. The pivot shaft flat surfaces should face DOWN and the square protrusion of the Cam-Handle should face the bracket.

| 8.3.8 Slide a ½-inch diameter stainless steel washer on each U-bolt end.

8.3.9 Thread a Nylock™ nut onto each U-bolt end finger-tight.

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NOTE

The following steps are for adjusting the nominal gap between the compression plate and the compression block with no load on the tiedown. This exercise is intended to be performed by the carrier at the applicable trucking terminal, and not during transit.

8.3.10 Using a dial caliper or equivalent measuring device, measure the gap between the compression plate and the compression block. The nominal gap is 0.126 in. Verify gap is 0.126 in. + 0.010 in. If the gap is not within this tolerance, then it will be necessary to adjust the gap as described below:

- If the gap is between 0.116 in. and 0.136 in. (or greater than 0.136 in. due to inconsistencies in material tolerances from the manufacturer), no adjustment is necessary.
- If the gap is between 0.100 in. and 0.115 in., disassemble the tiedown and install one 0.015-inch load washer shim to the bottom of each stack of disk springs in the compression block (see Figure 2) as needed to achieve the gap dimension of 0.126 in. + 0.010 in.
- If the gap is between 0.086 in. and 0.099 in., install two 0.015-inch load washer shims to the bottom of each stack of disk springs in the compression block (see Figure 2) as needed to achieve the gap dimension of 0.126 in. + 0.010 in.

8.3.11 Reassemble tiedown and verify gap is 0.126 in. + 0.010 in.

8.4 Screwjack Tiedown Assembly

Perform the following:

8.4.1 Place all six linkages on the FRONT block in the sequence below:

- Slide two ¼-inch thick linkages onto the block (one on each side).
- Slide two 3/8-inch thick linkages onto the block (one on each side).
- Slide two ¼-inch thick linkages onto the block (one on each side).
- Attach retaining rings on each end of the block.

8.4.2 Place all six linkages on the BACK block in the sequence below:

- Slide two ¼-inch thick linkages onto the block (one on each side).

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- Slide two 3/8-inch thick linkages onto the block (one on each side).
- Slide two 1/4-inch thick linkages onto the block (one on each side).
- Attach retaining rings on each end of the block.

8.4.3 Place four 3/8-inch thick linkages into the bottom block.

8.4.4 Slide two 3/8-inch round linkage pins through the bottom block.

8.4.5 Attach retaining rings on both ends of each linkage pin.

8.4.6 Place eight 1/4-inch thick linkages into the top block.

8.4.7 Slide two 3/8-inch round linkage pins through the top block.

8.4.8 Attach retaining rings on both ends of each linkage pin.

8.4.9 Put a bronze flat washer on the ACME thread bolt.

8.4.10 Slide the ACME thread bolt through the front block, then the spacer tube, and thread it into the back block.

8.4.11 Install the six disk springs in each top block counterbore in the sequence below (see Figure 3):

- 1 down
- 1 up
- 1 down
- 1 up
- 1 down
- 1 up

8.4.12 Install the tiedown bolts and top bracket in the sequence below:

- Slide the bolts through the top bracket.
- Place an O-ring on the bolts.
- Insert the bolts through the compression plate.
- Insert the bolts through the disk springs.
- Insert the bolts through the top block.
- Thread the bolts into the bottom block.
- Install the 1/2-inch Nylock™ nuts to lock the bolts in place.

8.5 Axles/Brakes

Comply with the service instructions carefully when working on the axles and brakes.

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The trailer's axle/brake assemblies are standard commercial components. Comply with the manufacturer's recommended procedure for maintaining these components. A schedule for the periodic adjustment, cleaning, inspection, and lubrication of the axle and brake equipment shall be prepared based on experience and the type of operation. Brakes shall be adjusted as often as needed for correct operation and safety. Brake adjustments shall give correct clearance between the lining and drum, correct push rod travel, and balance between the brakes. Brakes shall be cleaned, inspected, lubricated, and adjusted each time the wheel hubs are removed (49 CFR §396.25, "Qualifications of Brake Inspectors").⁵

Debris entering the brake system air lines can clog the relay valves. To prevent debris from entering the brake system air lines when a trailer is disconnected from the tractor, "glad-hand" covers shall be used on all trailers that are equipped with them.

8.6 Suspension

WARNING

If the trailer is to be raised with jacks, work under the trailer **MUST NOT** take place if supported by jacks only. Jacks can fail and cause death, or tip over and cause serious personal injury. The trailer **MUST** be properly supported with appropriately rated blocking or jack stands prior to beginning work under a raised trailer.

The suspension has a specific ride height. The height is controlled by a height control valve to maintain an even trailer height. Perform a maintenance check by inspecting the unit. Verify the suspension is fully operational daily (or before each trip).

NOTE

Grease is not to be applied to the height control valves. No external lubrication is required.

The height control valve on each side controls all air springs on its respective side. The height control valves shall be inspected regularly. Look for proper clearance around, or damage to, the valve control arms or adjusting blocks.

Drain the air tank periodically to remove water from the air system tank.

8.7 Tires/Wheels

Verifying the cold air pressure is at the manufacturer's recommended pressure is part of routine tire maintenance. The tires shall be routinely checked for excessive wear, bulges, cracks, cuts, or penetrations.

Clean the wheels often with a high-pressure washer and a mild detergent. Check the metal surfaces of the wheels thoroughly for excessive corrosion buildup, metal cracks,

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bent or broken flanges, etc. This includes the areas between the dual wheels. Report abnormalities to the WIPP Transportation Scheduler before using the trailer.

8.8 Landing Gear

Check the landing gear routinely for bolt tightness and for lubrication. The specific maintenance items are listed in the manufacturer's service manual.

Any repair of the attachment welds to the chassis shall be performed by authorized personnel listed in Section 9.0.

9.0 SPECIALIZED MAINTENANCE

Due to the design of the trailer, some maintenance activities must be done by authorized service representatives. This section lists the responsibility for maintenance of trailer components.

9.1 Chassis

The chassis main-rails are made of heat-treated steel. This material shall NOT be welded or drilled by unauthorized personnel. If welding or drilling is needed to repair/replace a part or repair a weld, the chassis shall be sent to a DOE-approved maintenance facility.

9.2 Tiedown Assemblies

If tiedown components need repair or replacement, verify the new parts are available at the warehouse and have been approved by NWP Quality Assurance before use.

10.0 CHECKS

In the trailer preventive maintenance program, regularly scheduled checks shall be performed. These checks are needed to comply with DOT requirements.

10.1 Interval Checks

In addition to pre-trip and post-trip checks, trailer inspections are required, at a minimum, annually, as stated in Subsection 10.2. The carrier's contractual agreement and/or regulatory agencies may require more frequent and/or additional checks to those stated in Section 3.0.

10.2 Annual Checks

10.2.1 DOT Requirements

To comply with the DOT requirements, the trailer shall be inspected annually. This annual inspection includes (at a minimum) all points covered in the vehicle inspection report (49 CFR §396.11). It also requires an inspection of the critical weld areas. Carry

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proof of a satisfactory inspection either in the vehicle, or on an affixed decal (49 CFR §396.17, "Periodic Inspection").^{3,6}

10.3 Recordkeeping

Reports shall be prepared and kept by the carrier using the recordkeeping requirements of 49 CFR Part 396, *Inspection, Repair, and Maintenance*, and in accordance with the individual carrier's contractual agreement:

- Pre-trip inspection
- Post-trip inspection
- [Annual inspection](#)⁷ (49 CFR §396.21, "Periodic Inspection Recordkeeping Requirements")

11.0 EXTENDED STORAGE

For trailers that are to be taken out of service for an extended period of time (six months or more), the following conditions are recommended, or as otherwise directed by the Department of Energy:

- Elevate each trailer and adequately support on blocks with the tires off the ground to prevent damage to the tires,
- Unlock the brakes so the wheels can be turned periodically to lubricate the axle bearings,
- If indoor storage is not an option, cover the entire trailer with an appropriately sized RV cover to protect the paint, tires, and other rubber or plastic components from deterioration by ultra-violet rays.
- If covering the trailer is not an option, then the tiedown assemblies should be removed and stored indoors or in a manner that will protect them from the elements.

An exit inspection for each trailer that is being taken out of service is to be performed to document the condition of the trailers at the time. When each trailer is placed back into service, an entry inspection is to be performed to document the condition of the trailers as they return to service.

[Checks and maintenance according to 49 CFR §392.7](#), shall be done before using a trailer from storage.¹