

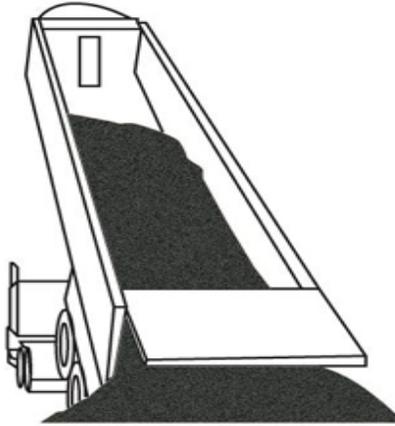


Frameless End Dump Operation Procedures

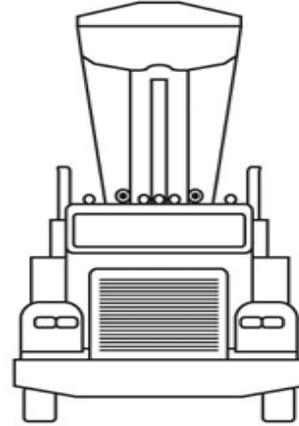


The following information is provided in order to communicate factors that have been identified to contribute to frameless end-dump trailer tip-overs. For each contributing factor, suggested best practices have been identified to assist in mitigation or prevention. This is not intended to be a complete guide to all situations a driver may encounter. However, nothing will replace common sense and good judgement to avoid the various obstacles and hazards that you may encounter while servicing Buchheit Logistics customers.

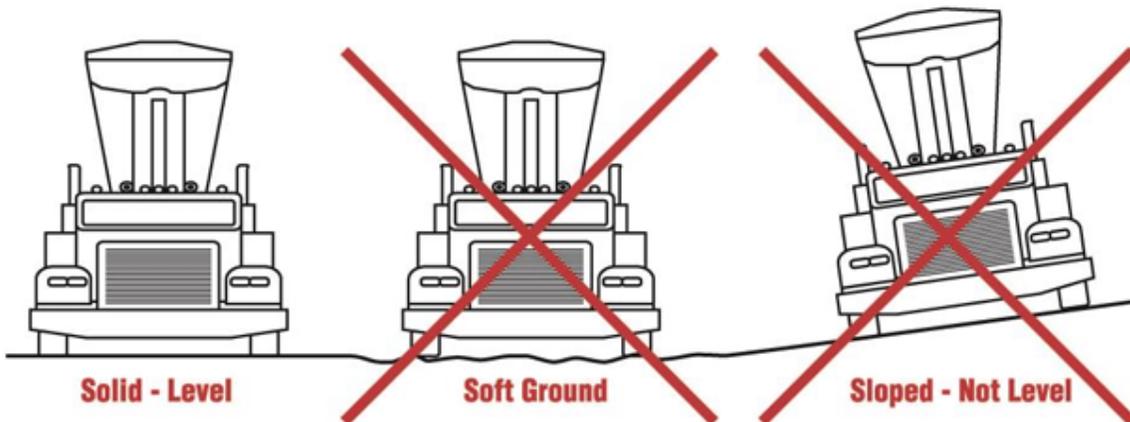
Frameless End Dump Operation Procedures



Before dumping verify that the load has not shifted in transit.



Do not dump or raise the trailer for any reason with high gusty winds.



Frameless End Dump Operation Procedures

Frameless End-Dump Trailer Pre-Trip Inspection Checklist:

Driver pre-trip inspections must be completed before the first trip of each day. For each pre-trip inspection, the driver should visually inspect for any deficiencies, including the following:

- Verify that all lights function properly.
- Check that all reflectors are in place and not obscured.
- Ensure the tires are properly inflated.
- Check that tailgate latches open and close.
- Make sure tailgate latching linkage is properly adjusted. When latched, the locking cams must pass over center on both tailgate latches.
- Check the hinge/dump pins (good condition/properly lubricated).
- Inspect for any apparent damage.
- Visually inspect all leaf springs for cracked or broken leaf and equal arch.
- Be sure leaf springs are secured within the hangers and equalizers.
- Check that all air springs are inflated, and shock absorber fasteners are tight.
- Visually check the brake pads or shoes for wear.
- Check for chafed hoses or cracked fittings.
- Check the frame and cross members for cracks and that bolts & welds are in good condition.
- Check the Fifth Wheel Plate and hydraulic fittings for cracks, leaks, etc.
- Examine landing gear for proper road clearance and ensure crank handle is securely stowed.
- Make sure there is sufficient hydraulic oil in the hydraulic tank and check for leaks.

Preventive Maintenance:

It is important that preventive maintenance inspections are performed regularly to ensure safe operation of the trailer.

Weekly Maintenance should include lubrication/grease of all moving parts in addition to a thorough inspection to ensure there is no adverse wear or damage.

In addition to weekly maintenance, all welds, fifth wheel plate and kingpin fasteners should be inspected monthly for damage or cracks that could lead to catastrophic failure and overturn.

Frameless End Dump Operation Procedures

Tips for Safe Loading:

Know what your trailer can handle safely – though in nearly all cases you are limited by the state and federal weight limitations and bridge laws, same as your truck, all trailers have a capacity rating for Gross Vehicle Weight Rating (GVWR) and Gross Axle Weight Rating (GAWR) stamped on the frame, typically next to the VIN plate, near the landing gear. Never overload your wagon.

The safest loading method is by hopper discharge since the material flow into the dump body is steady. With slow movement of the vehicle, the load can be evenly distributed in the dump body.

Scrap, metal structural materials, plates, motors, turnings and borings should be loaded with a conveyor, grapple, or magnet in order to ensure even distribution of material.

The most common method of loading a dump trailer is with a front-end loader. Front-end loading has disadvantages:

- The loader operator often cannot see inside the dump body and may load more of the material to one side or the other. Uneven loading can contribute to a rollover on the highway or a tip-over during dumping operations.
- Front-end loader buckets and lift arms often damage the trailer sideboards, top rail, tarp, and bow system if not stored or positioned to the side away from the loading process.

For floor loaded cargo such as pallets or other non-bulk freight, be sure the tailgate is barn-doored and pinned or chained in place, so it does not swing while loading.

Loads with a high center of gravity require special safety precautions. A high center of gravity requires special attention due to the impact on roll stability. Lower operating speeds will best compensate for a high center of gravity load.

Though it is a common practice to move the truck and generate a hard brake (forward or back) to shift product or “shake down” a load, this is not recommended as it may cause excess wear on the equipment.

If not evenly loaded, the driver may need to manually distribute the load in the trailer. This may require the use of a rake or shovel to move product.

Always ensure that you tarp the load before departing the shipper’s facility. Be sure the tarp is in good condition and does not have any holes or tears that could allow moisture to damage or contaminate the customer’s material.

Tarping is mandatory for all loads transported. Proper tarping helps prevent material loss and damage to other vehicles on the roadway.

Frameless End Dump Operation Procedures

Unloading Procedures:

1. Pull, or back the trailer to the dumpsite.
2. Before dumping, exit the cab to inspect the site and the dump equipment. Be assured of the following:
 - There are no high or gusting winds.
 - The ground is firm and level.
 - There are no electrical wires in the immediate area.
 - The area around the trailer is clear of personnel and equipment.
 - The tires are properly inflated all around.
 - There are no broken or sagging suspension springs.
 - The payload is evenly distributed from side to side.
 - All Truck/Tractor/Trailer wheels must be in line before dumping.
3. Open the tarp and other accessories (tarp bows) that might interfere with dumping.
4. Hang up the rear mud flaps.



WARNING!

TIP-OVER HAZARD. Can cause serious injury or death.

Raising the dump body with the air springs inflated may cause the load to lean. Always deflate trailer air springs prior to raising the dump body.

5. On trailers with air ride suspension, deflate the air springs to lower the dump body onto the internal hard cushions. DO NOT try to dump the load with the air springs inflated.



WARNING!

TAILGATE BREAKAWAY. Can cause severe injury or death.

When unloading material from the coal chute, the gate winders must be clamped to prevent tailgate bowing and to avoid an accidental tailgate opening.

Loosening a gate winder when the tailgate is not locked can allow the tailgate to spring open. Before loosening a gate winder, verify that the tailgate locking linkage is locked "over center."

6. Verify that the tailgate latching links are locked over center. The locking cam must be firmly clamped against the stop block.
7. If not dumping through the coal door, loosen and unhook each of the gate winders.

Frameless End Dump Operation Procedures

8. Open the tailgate (or coal door, if dumping into a hopper). Be sure the tailgate can swing freely and in freezing weather, it is not frozen shut.
9. When operating a frameless dump trailer, perform the following tasks prior to dumping:
 - Apply the trailer parking brakes **ONLY** and be sure that the tractor brakes are released. The draft arms will pull the tractor back as the dump body rises.

	<p>WARNING! TIP-OVER HAZARD. Can cause serious injury or death.</p> <p>The tractor brakes must be released when dumping the body on a frameless dump trailer. Failure to release brakes will damage the hoist or draft arms and could lead to a tip-over.</p>
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10. Engage the PTO (power take-off).

	<p>WARNING! TIP-OVER HAZARD. Can cause serious injury or death.</p> <p>DO NOT leave the controls while the dump body is raised. Always keep the raised end in view. Be prepared to lower the body quickly if it starts to lean.</p>
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11. Shift the hoist control into the “lift” position. Raise the dump body to the lowest height for dumping. DO NOT raise the load to the lifting limit of the hoist cylinder.

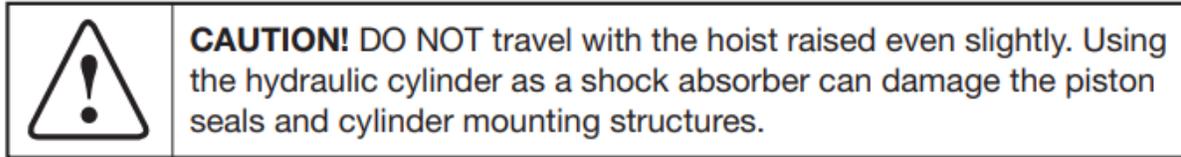
	<p>WARNING! DO NOT fully extend the hoist cylinder. Raising the load to its upper limit will jar the load and could cause the hoist cylinder to fail. Over-extending the hoist cylinder or jarring the raised load could cause the load to fall or tip.</p>
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12. When the dump body is raised, shift the hoist control into the “hold” position until the load is dumped or material flow stops.

	<p>WARNING! COLLISION HAZARD. Can cause serious injury or death.</p> <p>Failure to disengage the PTO can allow the dump body to raise and collide with overhead obstructions or electrical wires. Disengage the PTO before leaving the dumpsite.</p>
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13. Disengage the PTO and move the hoist control to the “down” position. Allow the hoist cylinder to fully retract before moving the truck.

Frameless End Dump Operation Procedures



14. When the dump body is fully lowered, pull the unit forward to clear the load.
 - Note: Dump bodies longer than 28' will not completely dump because the stockpile dams the material. To complete the dump, the body should be fully lowered and the truck moved forward. After the truck is moved forward, the dump body can be raised again to complete the dump operation.
15. After dumping, check for material in the dump body. Remove excess material and sweep or blow out the trailer.
16. Lock the tailgate. DO NOT operate the trailer on the highway with the tailgate open.
17. Check the outside of the trailer for loose debris. Remove all loose material before leaving the dumpsite. DO NOT allow loose material to fall off during highway travel.
18. Unhook the rear mud flaps.
19. Close the tarp.
20. Tighten down all tailgate safety winders.
21. Check and secure all accessories before leaving the dumpsite.



Frameless End Dump Operation Procedures

Tip-Over Conditions:

To avoid a tip-over, the rear portion of the trailer must remain level from side-to-side. If the body leans to one side at the start of the lift, it will lean more as the body rises. The top of the load gets more off-center, causing tipping force to increase as the dump body rises.

The hoist cylinder is not strong enough to resist a tip-over. If the rising nose of the dump body starts to move sideways because the trailer is leaning, the hoist will not stop the sideways movement.

A number of factors can lead to a tip-over, but the more common and serious situation is caused by two or more factors combined. In order to avoid a tip-over, any condition that causes the rising dump body to lean or quickly shift position must be avoided. Some of these conditions are as follows.

- Tire Problems
 - A blown tire or a tire that is severely under-inflated can cause the rising dump body to lean sideward. Prior to dumping, the tires should always be checked for proper inflation.
- Broken Springs
 - A broken or weak spring will cause the dump trailer to become unstable while dumping. Overloading will accelerate the problem. Thorough preventive maintenance inspections are recommended to monitor the condition of spring suspensions.
 - Drivers are expected to ensure that equipment is thoroughly inspected.
- Overloading
 - Overloads often damage tires and springs. Excess overloading can deform the axle beam and wheel spindles, resulting in increased tire wear. An overloaded trailer has a high center of gravity. A high center of gravity contributes to rollover on the highway, as well as tip-over during dumping.
 - Loads should be weighed prior to departing the shipper's facility and drivers are expected to ensure that any trailer that is overweight does not leave the shipper until the load is legal.
- Jackknife Position
 - When the dump trailer is not in line with the tractor, it is difficult to see if the dump body leans. When raising the load, stay as close to the center of the unit as possible and watch the nose of the dump body rise. If you see the nose start to lean, lower the dump body immediately.
- Improperly Loaded or Unbalanced Loads:
 - Trailers that are loaded with a loader can be loaded heavy to one side and material can shift in transit, causing uneven distribution. Additionally, certain loads can contain a variety of materials and if heavier/more dense items are loaded to one side, the load will be unstable when attempting to dump. While dumping, materials that hang up in the dump body will cause the trailer to be off balance. If a large amount of material sticks to one side of the dump body, the out-of-balance condition may contribute to a tip-over. Extra precautions must be taken when dumping in freezing weather or when dumping materials prone to clumping, such as wet clay. An observer in a safe location should

Frameless End Dump Operation Procedures

monitor how the load discharges from the dump body. If a problem arises, the driver can be warned.

- Drivers are expected to inspect their loads prior to dumping in order to ensure that the material did not shift during transit and is safe to dump.
 - Drivers should consider the use of an appropriate releasing agent, which can be applied to trailers prior to loading in order to prevent or minimize the potential for material to freeze to the floor/walls of trailer (calcium chloride, salt, plum juice and in some cases even diesel fuel) - consult with your Fleet Manager for suggestions on an acceptable releasing agent that will not cause material quality or other complications.
- Movement
 - Accidents occur when the dump trailer is moved with the dump body raised. A raised dump body will sway when the vehicle is moved, making a tip-over more likely to happen. Accidental contact with overhead electrical wires or telephone lines is also likely. Avoid moving the truck with the dump body raised.
 - Uneven Surfaces and Slopes:
 - Never raise the dump body when the trailer is on uneven ground. Even a ground surface that looks flat can have enough slope to cause a raised dump trailer to lean.
 - Prior to dumping, ensure that you are on solid level ground. Drivers should not attempt to dump on a slope.
 - Soft Ground or unstable ground:
 - Some dumpsites may require dumping of the load while on soft ground. Fresh fill often settles unevenly, causing the ground to be “spongy.” Dumping while on soft ground or fresh fill should be avoided.
 - High Wind Conditions
 - Gusty wind conditions or adverse crosswinds coupled with any of the other tip-over factors can result in a tip-over. Dumping operations should be suspended while high winds persist.
 - Drivers should not attempt to dump material during high wind conditions.
 - Humping
 - “Humping” is a slang term used in the dump trailer transportation industry that describes a method to dislodge a stuck load in a dump trailer. The event is typically defined in one of two ways:
 - (1) Lowering the dump body via the hoist control valve and engaging the valve to the hold position, causing a sudden stop, thereby attempting to jar the load loose.
 - (2) Moving the truck forward or backward with the dump body raised, then braking hard to dislodge the load. Either one of these actions can cause a tip-over, particularly if the hung load is off balance.

Frameless End Dump Operation Procedures

- This procedure is very risky and must be avoided. Trying to dislodge material by quickly moving the truck forward or backward, then braking hard, can cause a tip-over, particularly if the hung load is off balance. In addition to being a dangerous practice, the forces generated can cause catastrophic cylinder failure to an extended hydraulic hoist.
- Additional factors to consider:
 - Drivers should remain in the cab and wear their seatbelt when dumping unless the dump trailer requires the use of outside-the-cab controls.
 - Drivers should ensure a safe distance is maintained as trucks are performing dumping activities. Establish an appropriate distance between trailers to create a safe zone. In the event of a tip-over incident, this will prevent other personnel or equipment in the area from being affected.
 - Drivers should barn-door dump trailers to dump scrap metal. Material may not flow efficiently if the flip gate is used, as it is likely to cause material to get hung up. Once hung up, materials shift or get wedged causing the load to become unbalanced.
 - Do not take unnecessary risks.
 - Attempting to dump a load, despite having some concern about the condition of their trailer, ground conditions, arrangement of material in the trailer, overweight load, attempting to release wedged material by jerking trailer when elevated, attempting to dump with tractor not properly aligned with the trailer, etc.



When all else fails, and you are not sure, STOP and call someone for help. Do not assume the risk of turning over the trailer or someone getting hurt. SAFETY is everyone's responsibility.