

Snow Removal Safety Awareness for Westchester County Parks Employees

Purpose:

- The purpose of this presentation is to bring a heightened sense of awareness to employees who may plow or remove snow using snowblowers, pick ups and similar sized dump trucks.

Preparations

- Do you have a written "Comprehensive Plan" covering all aspects of your winter operations?
- Are you prepared?
- Did you have a post-winter meeting this past spring?



Stay warm Cold + wind = Frostbite

Wind Chill Chart

		Temperature (°F)											Temperature (°C)											
Wind Speed (mph)	°F	10	20	30	40	50	60	70	80	90	100	110	120	°C	10	20	30	40	50	60	70	80	90	100
		10	20	30	40	50	60	70	80	90	100	110	120		10	20	30	40	50	60	70	80	90	100
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WEAR THE RIGHT CLOTHING

- Clothing should protect you from cold, wind, and precipitation and should also provide ventilation—be "breathable".
- Protect head, feet, hands, and face. Keep dry.
- Cover your head. Up to 40 percent of body heat can be lost when the head is exposed.
- Footgear should be insulated to protect against cold and dampness.
- Dress in layers, wearing warm, waterproof/resistant clothing.



Winter Weather Safety

- Stay warm
- Avoid slips and falls
- Use care when shoveling snow
- Operate snow blowers safely
- Plowing safety
- Safety when applying salt/antiskid



Avoid slips and falls

- Walking on snow or ice is treacherous – walk like a penguin
- Well insulated boots with good treads is a must for walking in a winter storm.
- Wear ice cleats on icy sidewalks or streets.
- When walking on an icy or snow-covered walkway, take short steps and walk at a slower pace so you can react quickly to a change in traction.

Avoid slips and falls

- Be aware that approaching vehicles may not be able to stop at crosswalks or traffic signals.
- Walk carefully inside buildings when you have wet
- At night, wear bright clothing or reflective gear, as dark clothing will make it difficult for motorists to see you.
- During the daytime, wear sunglasses to help you see better and avoid hazards.

Use care when shoveling snow

- Stretch before and after. Dress in breathable layers and wear proper PPE.
- Push snow instead of lifting whenever possible. Use a snow pusher to push snow and a shovel to lift/shovel snow.
- Never lift and twist with your back.
- Use extreme caution when shoveling near roadways and aisles.
- When possible, clear snow every 1 to 2 inches.
- Shovel snow in intervals, taking breaks to prevent overexertion.

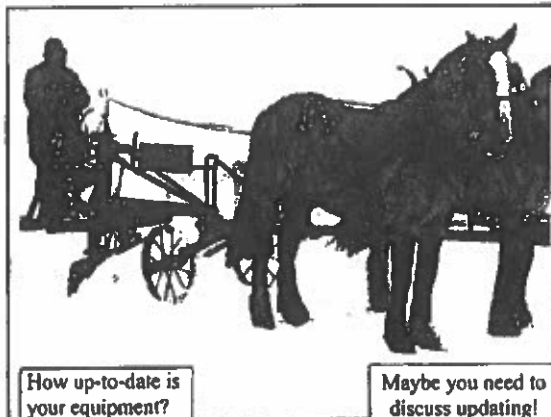
Winter Weather Safety



SAFE SNOW BLOWING

- Locate hidden obstacles in advance and clear them or mark them before snowblowing.
- Keep your body behind the handles at all times while in operation.
- Always turn off engine prior to working on or in the machine. Never, ever use your hands (or any other part of your body) to free an obstruction
- Wear ear and eye protection, appropriate PPE to protect from the weather and sturdy boots with good traction.
- Never blow snow toward pedestrians or cars.

PRO SAFETY SYSTEMS LLC



How up-to-date is your equipment?

Maybe you need to discuss updating!



Salt/anti-skid safety

- **Pre-season maintenance** on the spreader before using. Don't operate the salt spreader attachment without proper training.
- **Safe lifting technique**- Use caution when loading the hopper to spreaders. Use proper lifting techniques. If using bags of salt, lift with knees (not back). Don't lift bags above chest. Get help lifting bags if they weigh more than 50 pounds. If possible, load salt into hoppers using mechanical equipment.
- **Vehicle safety**- Use appropriate warning lights on vehicles when using roadways and beware of other vehicles and pedestrians.
- Don't use hands to unclog the hopper or the spreader plate on vehicle mounted spreaders.
- **Wear appropriate clothing**- winter coveralls, boots, gloves, etc.
- **Use salt wisely**- Try to minimize spreading salt beyond paved surfaces to minimize damage to grass and plants.

Winter Safety Summary

1. Stay warm
2. Avoid slips and falls
3. Use care when shoveling snow
4. Operate snow blowers safely
5. Plow safely
6. Be safe when applying salt/antiskid

SNOWPLOW SAFETY

SNOW & ICE SAFETY

- **Pre-Season Maintenance Program**
 - Store equipment in designated areas
 - Inspect & Service
- **Periodic Inspection**
 - Before & after storms
 - Inspect/service
 - Cinders/salt/sand emptied & refilled to prevent hardening

SNOW & ICE

- **Pre-Season Training**
 - Supervisors should review snow procedures & operation of vehicles for experienced drivers
 - New employees need a full instruction course on operation of the vehicle and storm procedures

VEHICLE OPERATION

- **Driver be familiar with potential problem areas on route:**
 - Elevated roadways, underpasses & other shaded areas
 - Areas where drifts normally occur
 - Construction areas, roadway plates, no shoulders, narrow bridges & other obstacles which may impede plowing

PREPARATIONS FOR STORM

- All available equipment shall be gassed, checked and prepared for use prior to the storm
- If possible keep loaded trucks in heated areas
- Monitor weather forecasts to determine manpower requirements

Snowplow Safety



The snow plow and sweeper are most often mounted on the front of a power unit such as a small tractor, a pick-up truck or as special attachments for grounds keeping equipment.

- The ability to produce traction is usually the limiting factor to move snow. To increase traction, use tire chains or add additional weight to the unit.

Snowplow/driving safety



Winter driving poses many significant hazards. Keep truck or equipment in good condition. Check the battery and ignition system, heater and defroster, windshield wipers, brake system, tires and exhaust system are in good condition. Be sure the windshield wipers are functioning properly, all lights are in working order, the tire treads are in good condition, and the tires are filled to proper pressure. Check fluid levels and top off before driving in hazardous conditions. Be sure the windshield wiper fluid, power steering and brake fluid, antifreeze, and engine oil are at the normal levels, and the engine has the proper weight of oil for winter driving. Keep a full gas tank. Clear snow from headlights and tail lights before beginning to drive so that you can see and be seen. Carry emergency equipment such as radio or cell phone with fully charged batteries, flashlight, ice scraper, tire chains, jumper cables, flares, first aid kit, tools, windshield fluid, small shovel, sleeping bag, extra gloves and hats, drinking water, and food.

Snowplow safety

Use extra caution when driving/plowing near pedestrians. Slow down or stop when approaching pedestrians. Maintain good steering capability. Many times the front blade will have a dipping action that may in all the weight from the front steering wheels. This makes it difficult to steer effectively. Operators should reduce the amount of snow that is added more weight on the unit's front. Have several drop points for the snow. Most blades and sweeps push the snow to one side. In wet, heavy snow the accumulation may not flow. Instead, it may stick and ball in front of the blade or sweeper. For these situations, have plenty of drop points and move the loads into the drop points as needed. Take small bites that will flow across the blade surface. Approach piles of snow at a reasonable speed. The impact of the blade on a pile of snow when approached at a fast speed can severely damage the machine's drive train and possibly injure or throw the operator from the machine. Stay clear of obstacles like curbs, stumps, posts, bridges and rocks that are close to embankments. Striking any of these objects could cause damage to the plow, machine, or truck.

SAFE ENTERING & EXITING EQUIPMENT

- Use handholds and steps to safely enter and exit.
- Establish three-point contact (two hands and one foot) to position the body for safe entry and exit. Break three-point contact only when you reach the ground, cab or platform.
- Never jump down or fall forward out of the vehicle.
- Wear shoes with sturdy, no-slip soles.
- Make sure steps are free of snow and ice.
- Never enter or exit or ascend and descend moving equipment

Plowing: Policies & Procedures

To start:


- Circle of safety
- Full fuel tank
- Secure all loose items in cab
- Wear safety belt
- Know your controls



Plowing: Policies & Procedures

To start:

- Check plow and plow blade
- Test radio communications




Check List!!

Plowing: Policies & Procedures

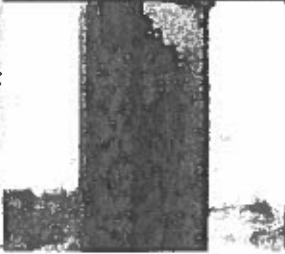
During operations:

- Keep windows, mirrors, lights clean
- Check plow and plow blade periodically
- Wear comfortable clothing
- Keep energy level up (food & liquids)
- Take breaks (coffee break / rest break)
- Be aware of stress / fatigue



Plowing: Policies & Procedures

- Check rear view mirrors
- Beware of traffic behind you!
- Traffic build-up?
- Do you pull off to let them pass?



SNOWPLOW SAFETY

- Know how to connect and disconnect your plow,
- Inspect the plow blade and report missing or broken springs & components,
- Inspect the lift cylinder and report leaks or broken hoses,

SNOW PLOW SAFETY

- Are the door mounted mirrors out of adjustment?
- Can they be tightened?
- Do you need bigger mirrors?
- Do you need a separate convex mirror on the right side of the cab?

SNOW PLOW SAFETY

- Does the heater, defroster & blower motor work?
- Have you topped off the windshield washer reservoir?
- Do the Wiper Blades need replacement?

SNOW PLOW SAFETY

- How wide & how long is the truck you're driving?
- How long does it take to stop on dry pavement?
- Where are its Blind Spots?

SNOW PLOW SAFETY

- Can you see over the high-end of the Plow Blade?
- How far does the blade project outward when its raised or lowered?
- Why is that important?

SNOW PLOW SAFETY

- How do you avoid striking parked cars with the blade?
- Raise the blade so that the plow is no closer than 2-feet from all parked cars & obstructions,

SNOW PLOW SAFETY

- The following information is provided to prevent accidents and work to keep the roads and parking lots of Westchester County clear and accessible during the snow season,

SNOW PLOW SAFETY

- Pre-Season Training:
 - Team-up Seasoned Drivers with New Drivers,
 - Practice Connecting & Disconnecting Plow Equipment before the snow falls,

SNOW PLOW SAFETY

- When its time to Plow...
- Always Wear Seat Belts,
- Use Low Headlight Beams (night)
- Scan ahead 12 to 15 seconds

SNOW PLOW SAFETY

• When its time to Plow...

• Know that Ice is 50% more slippery at 32 degrees than at 20 degrees,

• If you spread salt, apply it only after plowing two widths wide,

SNOW PLOW SAFETY

• When its time to Plow...

• Avoid Fire Hydrants, curbs, raised manhole covers and other Fixed Objects,

• Stay at least 2-feet away from all Parked Cars,

SNOW PLOW SAFETY

• Apply Salt to prevent road from freezing

• Only Plow after 2-3" has fallen,

• Spray on liquid calcium when Temp dips to 27-29 deg F

SNOW PLOW SAFETY BACKING UP

- Know where the curbs are located,
- Use extreme care - Slow & Cautious
- Honk 3 times before backing
- Open windows to listen
- *When in doubt - Don't back up!!!*

Plowing: Policies & Procedures

• Speed

Average speeds:

• Parking lots - 10-15 mph

• Urban plowing - 15-20 mph

• Rural plowing - 25-35 mph

• Watch how far and where you are throwing snow

• Damage to other vehicles

• Damage to adjacent property

• Blocking sidewalks, etc.

• Hitting pedestrians



Plowing: Policies & Procedures

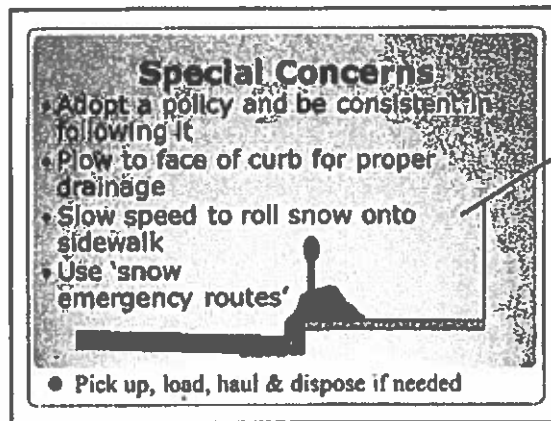
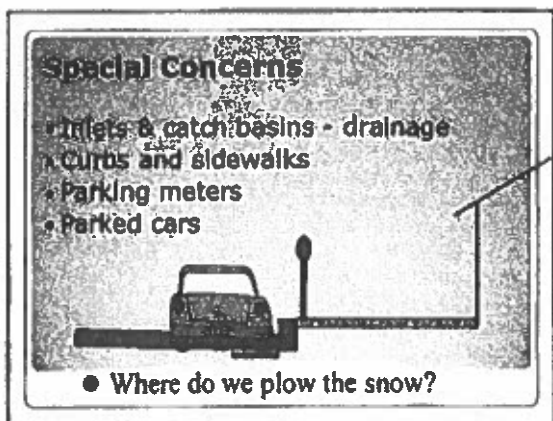
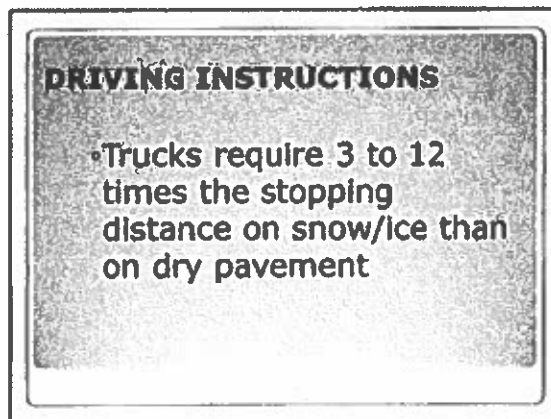
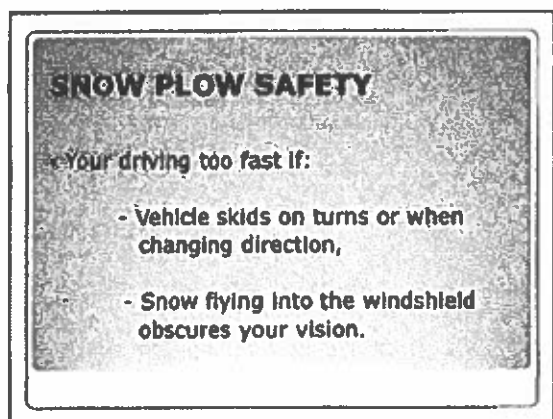
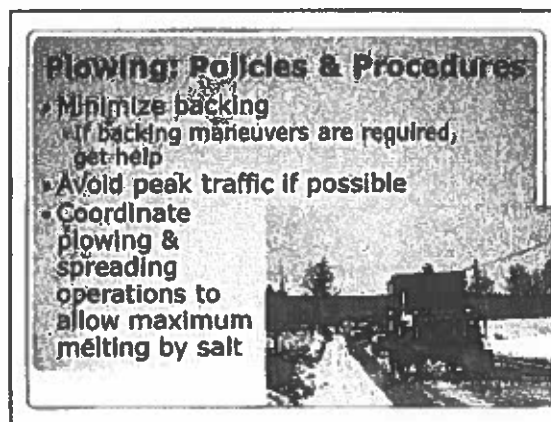
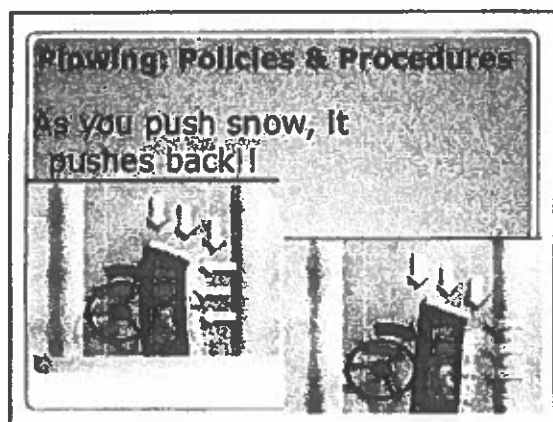
• Truck Handling

• Use lower gear than normal driving

• Maintain ample stopping distance

• Watch larger turning radius

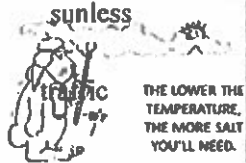




Spreading Salt

Salt application rates may need to be increased:

- sharp temperature drops
- at night or days
- on low roads



Chemicals

Chemicals applied to:

- prevent bonding of ice and snow to road surface
- prevent ice or frost from forming
- prevent buildup of snowpack
- melt ice that has formed



Chemicals: How do they work?

- Depress the freezing point of water, turning ice or snow into liquid or slush
- Solid salts dissolve to form brine solution

Blizzards

- Intense snow, wind, cold
- May want to plow only
- Add deicer as temperature warms & blizzard conditions subside
- White-out
 - Stay off road until visibility improves



Freezing Rain

- Apply solids
 - salt and abrasives
 - prewetted salt and abrasives
- Abrasives give immediate traction

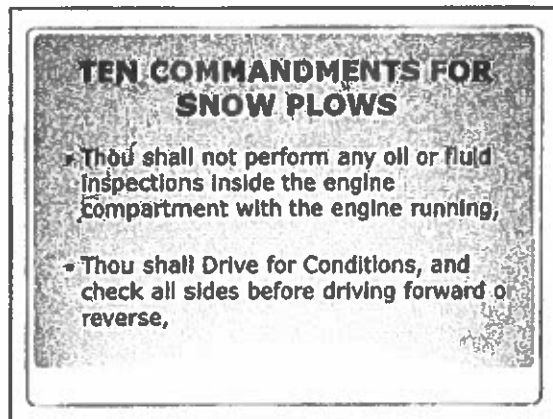
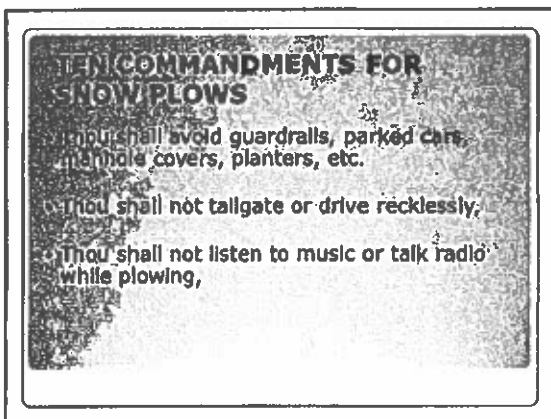
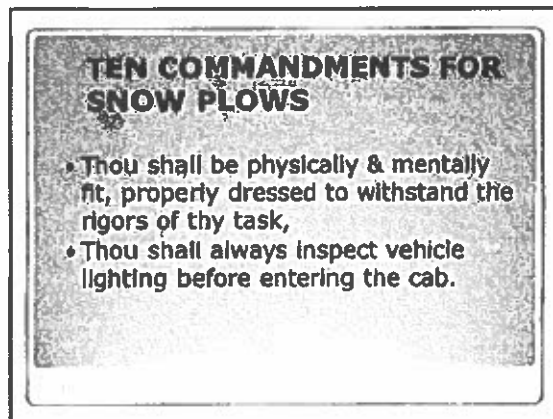
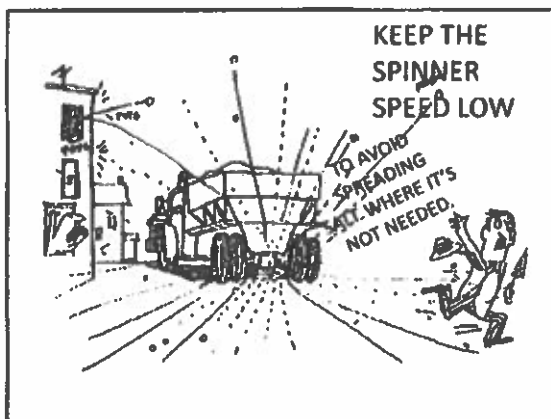
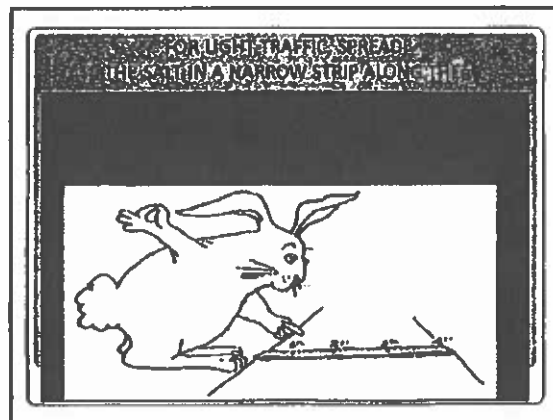
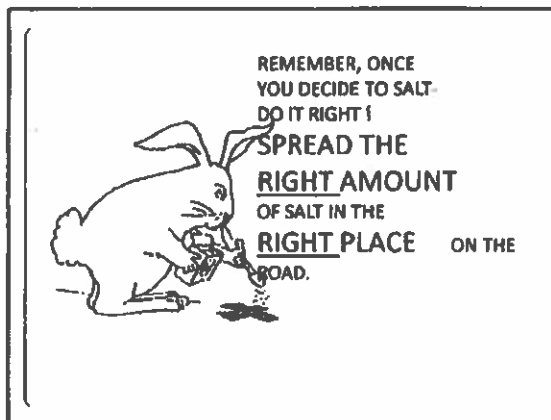
Spreading Salt

Start salting at start of storm

WHEN YOU SALT EARLY

THE SALT PREVENTS SNOW FROM BONDING TO THE ROAD.





TEN COMMANDMENTS FOR SNOW PLOWS

- Thou shall clearly signal before turning,
- Thou shall give right of way to pedestrians, and approaching cars,
- Thou shall render assistance to all stranded motorists;

SNOW PLOW SAFETY

- Salting is only used when ordered by supervisor,
- NO ONE RIDES IN THE BED DISPENSING SALT!!!
- Any truck carrying salt, must be washed thoroughly after a storm

SNOW PLOW SAFETY

- Report or Repair any equipment defects
- Fuel Vehicles
- Pressure Wash the underside of trucks indoors, to Wash Salt off.

SNOW PLOW SAFETY



SNOW PLOW SAFETY



SNOW PLOW SAFETY



Cleanup!

- After the Storm
 - order more materials, if needed
 - clean drainage facilities
 - push snow back
 - clean bridges and guardrail
 - cut drifted areas
 - clear hydrants, crosswalks, bus stops
 - wash equipment
 - check, repair delineators
 - clean crosswalks, fireplugs, etc..

DON'T FORGET!

- Final Spring Cleanup
 - Clean, Repair, Store Equipment
 - Check Salt Storage
 - covered, sealed from water table
 - Clean site
 - Sweep Roads & Streets (abrasives)
 - Clean Drainage Facilities
 - Flush Bridge Decks & Structures
 - clean drainage system & bearing areas

QUESTIONS?



Westchester County

Safety Practices Matching Tow Vehicle To A Trailer

Westchester County Drivers

Understand that County provides appropriate training but;

- You are licensed drivers and;
- As the driver of a truck or truck with a trailer you are responsible for the safe and appropriate operation of the vehicle.
- You have an obligation not only to operate it safely but to make sure that it is in proper working order before each use.

Drivers must:

- Inspect their vehicles
- Check fuel, oil, tire pressure, lights, condition of the vehicles, hook up to trailers, loading of equipment, etc.



Hazards and Human Factors:

- Cargo loads beyond the vehicle's capability.
- Jerky starts and stops.
- Traveling too fast and turning too sharply
- Not properly securing the cargo.
- Improper connection.

Matching your tow vehicle to a trailer

- It is necessary to follow these guidelines closely when setting up your car-trailer combo in order to avoid dangerous situations on the road.
- Fully-loaded unbraked trailers cannot exceed the empty weight (also known as the curb weight) of the tow vehicle.
- Loaded braked trailers may safely exceed the empty weight of the tow vehicle in some cases, but be sure to follow the recommendations of your vehicle's and the trailer's manufacturers.
- Make sure your hitch system components each have ratings that exceed the weight of the loaded trailer and that the hitch ball is compatible with the coupler.



Pintle hook operations

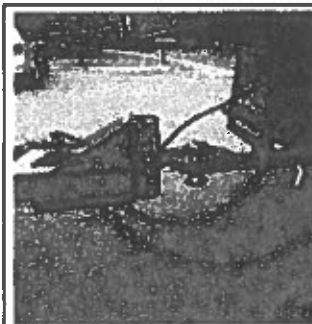
- After inserting the towing eye into the pintle hook, ensure the upper jaw is closed and the latch manual unlock device is properly aligned.
- Once connection is made, do not step over the tow bar.
- **Cotter/safety pin usage:** Before inserting the safety pin, pry the end of the pin open by hand to the necessary extent, so that when compressed for installation into the locking device there is enough tension to keep the safety pin from vibrating free.
- Before inserting the safety pin, ensure ball locks are present and not excessively worn, and that the push button is secure in the pin body and the button moves freely.

Pintle hook operations

- After the safety pin is installed, pull up on the latch (manual unlock device) to ensure the upper jaw will not open and the pin is securely locked (pressure of engagement with spring loaded jaw bar). If the manual locking device is not properly secured, pulling loaded tow bars or tow bars under pressure can cause out of the pin to break and cause injury and/or damage.
- When towing a trailer, federal safety regulations require one or more safety devices to prevent the towed equipment from falling loose of the tow vehicle. The use of safety chains is mandatory.
- Attach safety chains to vehicle towing eyes. If towing eyes are not available, secure chains around the towing vehicle's frame. If the frame is inoperable, wrapping the chains around the bumper is acceptable, but only as a last resort.
- If electrical hook-ups are available, make appropriate connections and check for proper operation of electrical system on trailer.
- If trailer brakes are available, make appropriate connections and test system before moving the vehicle.

Pintle hook safety check

- Ensure tow vehicle has required dural installed or stenciled: "CAUTION: Before towing, check triplock, install lockpin."
- Inspect the pintle hook assembly to ensure the jaw is fully operational and there is not excessive wear in the jaw pin and locking device.
- Ensure the safety locking device (cotter pin, BMS type quick release) is long enough to extend completely through the pin's lock (upper jaw) and latch (manual unlock device) when the pintle assembly is fully closed or in the closed position.
- Ensure the safety locking pin is attached to the pintle assembly by a chain or wire eye with appropriate fittings that are long enough to allow free movement of the pin after insertion into the pintle.



ring on a ball hitch, chains not crossed)

Safety practices

- When you stop to gas up, check your coupler and lights again to make sure everything is still connected properly.
- Check the tire pressure on your vehicle and trailer often.
- If you hear a strange noise, pull off the road and stop at a safe place to inspect everything for safety.

Trailer hook up

- It is the driver's responsibility to make certain that the proper hook up has been made.
- Make sure the weight class of the hitch matches the weight class of the trailer being pulled and the truck itself is properly sized.
- Make sure the trailer tires are properly inflated.
- Making sure the trailer plug is the right one and wired properly so there is no chance the brakes don't work properly. Test the brakes and brake-controller before pulling away.
- These are all things CDL drivers are taught but many of our smaller truck and trailer combos don't rate CDL status (Trailer with a gross weight >10,000lbs.) and the drivers have not had this formal training.



(This picture is underinflated)

Proper hook up procedure

- Don't get distracted. Always complete the hook up procedure from beginning to end.
- Make sure your **ball size** (stamped on the top of the hitch ball) matches the size of your **coupler**.
- When placing a ball clamp coupler onto your hitch, tighten it down well, and then give the trailer a good shake. After that, tighten the clamp down again.
- To hook up a trailer with a latch style coupler, double check to make sure your ball is the same size as the coupler. Then, release the latch and place the coupler on the ball. Finally, close the latch and place a pin or lock on it to fasten it safely.
- Lastly, hook up the safety chains by crisscrossing them and looping them through the loops on your hitch. Then cross them again and secure the hooks to the chains.
- Be sure that the safety chains have enough slack to turn, but won't drag on the ground.
- Always hook up running lights, brake lights and turn signals to your trailer. Check all lights before you drive away.

Step 1

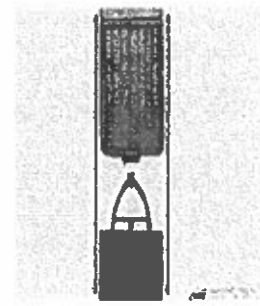
Raise your trailer tongue ball socket or coupler to a height to clear the ball.



WPICT02

Step 2

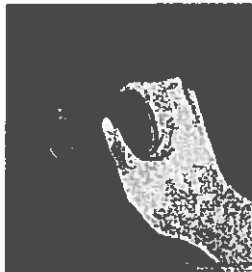
- Line up the center of your vehicle with the center of your trailer.
- Use a jack attached to the tongue. Be sure to jack up enough so you have enough clearance so you do not hit the trailer.



WPICT03

Step 3

- Stop the vehicle once the tongue coupler is over the ball.
- Put the vehicle in park.
- Turn off the engine.
- Set the emergency brake



Step 4

Lower the tongue coupler socket onto the trailer hitch ball until the full weight of the trailer is on the ball.



WPICT04

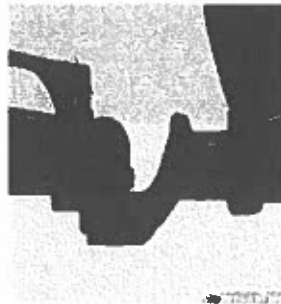
Step 5

Close the coupler clamp securing the ball in the coupler.



Step 6

Lock the coupler on the ball using a hitch pin or hitch coupler lock.



Step 7

Run the safety chains under the tongue so they cross one another. This keeps the trailer tongue from hitting the ground if it accidentally comes loose from the hitch while moving.



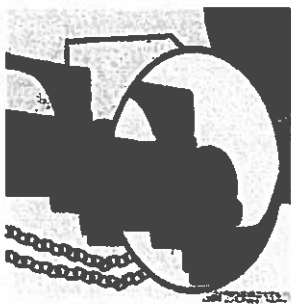
Step 8

Plug in the electrical connections for the trailer lights and, if applicable, plug in the electrical brake on the trailer to the tow vehicle.



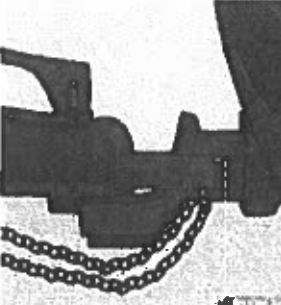
Step 9

You should check to make sure the hitch ball and coupler are firmly attached. Use the tongue jack to rise on the tongue to make sure the tongue coupler does not come off the ball.



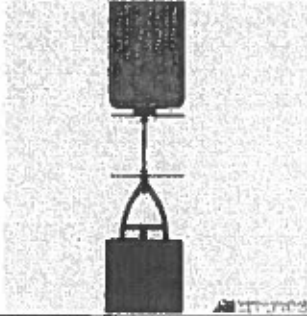
Step 10

Retract the tongue jack extension and swinging it up and out of the way, securing or removing it so it will not fall down while moving.



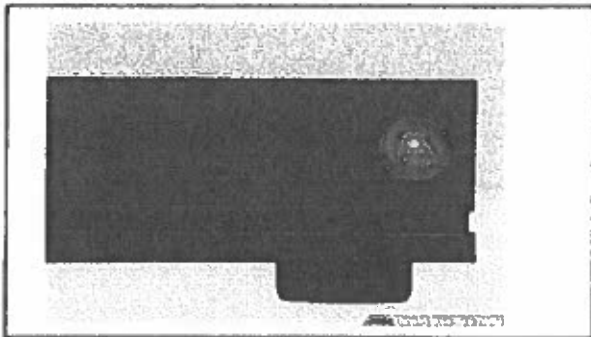
Step 11

Pull your tow vehicle forward a few feet.



Step 12

Stop the vehicle, put it in park, set the emergency brake, and turn on the vehicle lights



Snow Plow Training Sign In

[illegible]

