In-Service Training

for

CZ Pole Trailers

Date of training	
Operator	
Trainer	

NOTES

In-Service Training for CZ Pole Trailers

I. Scope

A. Instruction Limited to Peculiarities of CZ Pole Trailers

1. This In-Service Training curriculum assumes students already have a basic understanding of the proper operation of a commercial truck and trailer. We will not attempt to instruct on these basics.
2. The focus of the training will be on matters that are unique to the operation of a CZ pole trailer.

B. Four Areas of Training

1. Safe use of a CZ Pole Trailer
2. Adjustment and Loading
3. Operation
4. Maintenance

II. Safe Use of a CZ Pole Trailer

A. A trailer has the greatest potential to do damage or injure someone while in motion.

1. A loaded trailer traveling at highway speeds has significant potential to damage life and property. Think of a truck and trailer as a several ton bullet – **the single most important objective of an operator is to maintain control of the truck, trailer and payload <u>while in motion</u>.**
2. The safety of both the operator AND the public must be considered when using any mobile equipment. Although the operator has made the decision to assume certain risks while pursuing his occupation, the public at large has made no such choice. **Therefore, operators have a special responsibility to ensure the public safety.**

B. Proper weight distribution and securing of the load are essential to maintaining control while in motion.

1. Because pole trailers are often loaded with poles much longer than the trailer and because there might be a variety of poles and the trailer's length can be adjusted, the operator has a special responsibility to ensure that the weight distributed between the truck and trailer is appropriate.
2. Most CZ Pole Trailers come equipped with at least three heavy duty straps and binding winches. All the installed straps should be used to secure the load.

III. Adjustment and Loading Theory

A. Proper Tongue Weight

1. One of the most dangerous conditions occurs when a pole trailer is loaded with too little tongue weight. If the tongue is too light, the trailer may have a tendency to "fish tail", and that side to side swaying can increase in magnitude before the operator can react. Adequate tongue weight is essential to preventing fish-tailing. CZ Pole Trailer's heavy-duty tongues are designed to accept the heavy tongue loads required for proper towing characteristics.

   (a) At least 10% of the trailer's gross weight (GVW) is required for proper towing characteristics

   (b) No more than 4000 lbs tongue load should be applied in order to prevent damage to the tongue.

B. **Consider the Truck's Limitations**

1. Although the trailer is capable of carrying up to 4000 lbs tongue load, the towing vehicle may have limitations which preclude transferring that much weight. Watch the rear axle loading and capacity on the truck and adjust the load accordingly to maintain the minimum 10% tongue load while not overloading the truck.
   (a) Adding weight to the hitch on the truck will result in transfer of weight from the front axle to the rear axle, so the additional weight carried by the rear axle will be greater than the tongue weight.
   (b) Lighter weight trucks with a short wheel base and long distance from the rear axle to the truck's hitch could result in loss of steering traction if too much weight is transferred from the trailer to the truck.

C. **Longitudinal Placement of Poles and Trailer Length Adjustment**

1. Determining the placement of poles for a given situation is best determined by measuring a load typical of your application, using your materials. The following instructions will approximate proper load placement and **should be used only as a reference, or starting point, for your own analysis.**
2. When fully retracted, the center of gravity (CG) of the empty trailer is about 5 feet in front of the axle. With each interval of extension, the CG moves 4" to 5" more, forward of the axle.
3. To maintain 15% tongue load, the CG of poles carried on the trailer should be centered **at or in front of** the CG of the empty trailer. See Figure 1.

D. **Determining Proper Length of the Trailer For a Given Load**

1. The placement of the CG of the poles is the primary determining factor in the decision about how long to extend the trailer.
   (a) Place the CG of the pole the distance in front of the axle at least as much shown in Figure 1, below, and then adjust the tongue length so that the butt end of the pole is extending forward the front bolster the appropriate amount. (See Section E, below for details about the placement of the butt end.)
   (b) NOTE: Typically the butt, or larger, end of the pole is positioned to the front of the trailer.
   (c) NOTE: The CG of a pole, or load of poles, can easily be determined while lifting poles with a hoist. If the pole(s) are hanging level, the longitudinal CG will be the point directly below the hook on the hoist.
2. NOTE: The above discussion relates only to weight distribution and towing characteristics. The amount poles overhang the rear of the trailer can also affect the operator's decision about how far to extend the trailer and where to place poles.
   (a) Some jurisdictions have limits on how much poles can extend past the rear of a trailer.
   (b) The farther the end of a pole extends past the rear axle of the trailer, the wider it will swing while making turns.
   (c) The structural integrity of the poles, themselves, (bending strength) can limit how much the poles extend past the rear of the trailer unsupported.
   (d) Never adjust the trailer so short that the tongue load is less than 10% of the GVW, but it can be adjusted to a longer setting to minimize the rear overhang of the poles. Extending the trailer will increase the tongue load, so **care must be taken not to exceed the 4000 lb tongue load limit.**

3. Figure 1 shows the distance a pole, or load of poles, center of gravity (CG) should be placed in front of the axle to maintain at least a 15% tongue weight for the seven possible lengths of a CZ trailer.

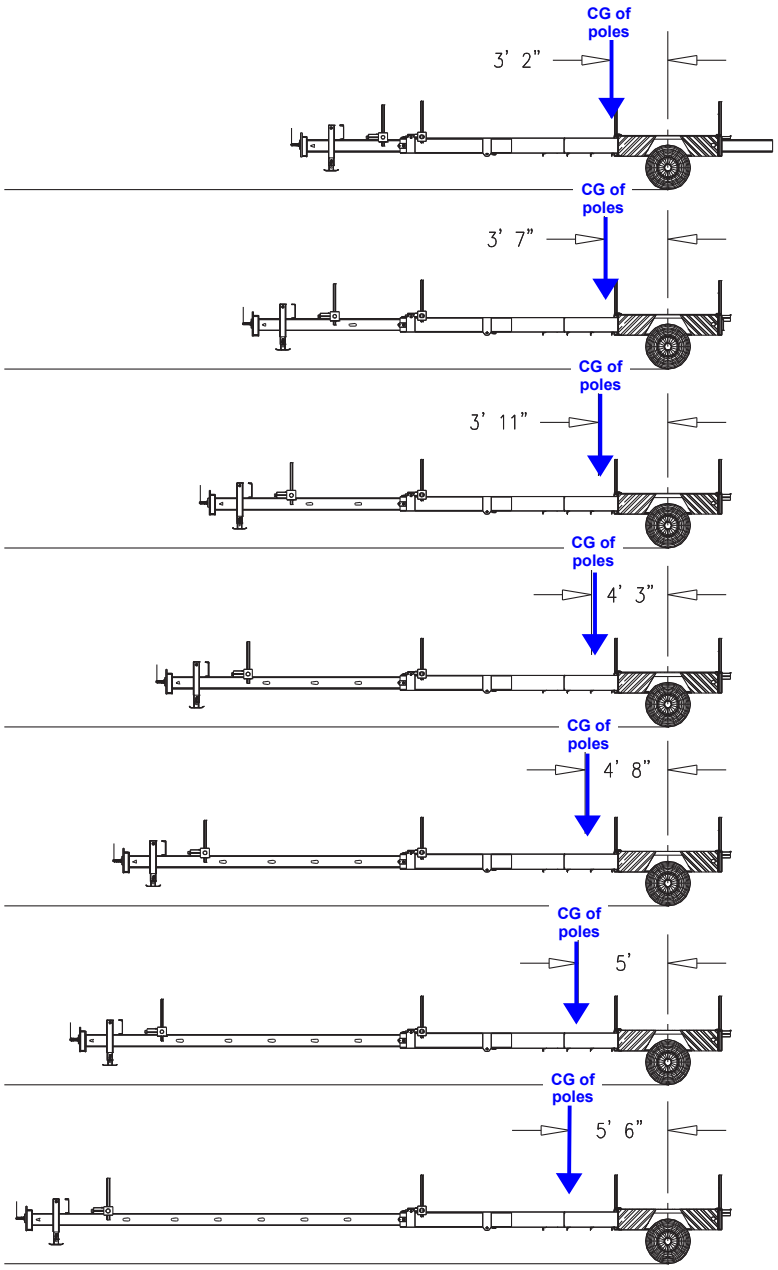

Figure 1

E. **Width of load – not too far forward**

1. If only one or two poles are carried, there is some latitude in the placement of the butt ends relative to the front of the trailer. One or two poles can be placed as far forward as the Jack Guard or back, just enough to allow the front strap to secure them.

2. If more than one or two poles are carried, they must be placed far enough back to allow for clearance for the truck's bumper while making sharp turns.

   (a) **Typically, the pole ends must be more than 4 feet behind the center of the pintle eye to provide clearance if poles protrude more than a foot or so wider than the centerline of the tongue.**

IV. Operation

A. Adjustment procedure

1. Background:

   (a) The length of a CZ Pole Trailer can be adjusted in about 30 inch increments. At each length interval, there is an electrical socket that connects the trailer wire harness from the front section to the rear section of the trailer. Care must be taken to ensure the plug is removed from the socket each time the trailer length is adjusted.

   (b) At each interval, there is both a large (1 1/2") locking pin hole and a smaller (1") locating pin hole. The larger pin actually secures the front portion of the trailer to the rear section. The smaller pin is strictly used to align the holes for easy placement of the larger pin.

2. Procedure

   (a) Loosen the 3/4" Jam Plate bolts at the top and front of the 10" receiver tube AND the ones on the underside, 4' back. (if not already loose). Do not loosen the smaller bolts on the Jam Plates, their only function is to retain the loose plates.

   (b) Pull the electrical plug and remove the 1 1/2" locking pin.

   (c) Extend the trailer a little longer than the desired length.

   (d) Place the locating pin at the desired setting and back up until it bottoms out. The locking pin holes will be automatically aligned. Replace the locking pin and plug, then tighten the jam plates.
   (Note: Use of the jam plates is optional, but they will eliminate rattle.)

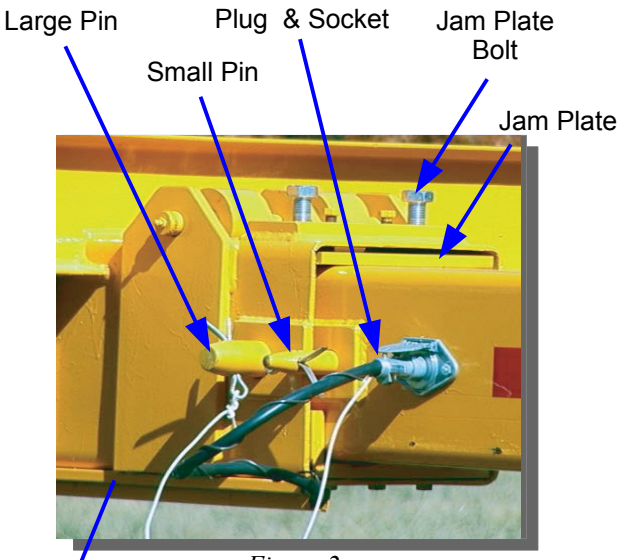

Figure 2

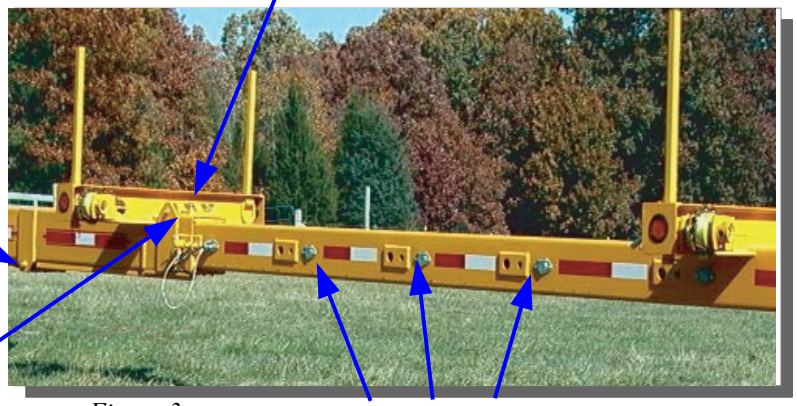

Figure 3

B. **About Jam plates**

1. The use of the Jam Plates is optional, but tightening them after setting the trailer length eliminates rattle and prevents the steel rollers from wearing a depression in the 8" tube after many years of use.
2. If the trailer is to generally be left at one length, it is advisable to make the effort to tighten the Jam Plates.

C. **Load binding**

1. All the straps should be used at all times the trailer is loaded.
2. Sharp edges are a nylon strap's worst enemy.

D. **Break-A-Way System**

1. The trailer is equipped with a gel cell battery break-a-way system that will engage the brakes in the event the trailer becomes separated from the towing vehicle.
2. The cable lanyard on the break-a-way switch should be fastened to a portion of the truck which is not likely to come loose if the trailer separates from the truck. If, for instance, the pintle hitch broke loose from the truck, if the cable lanyard was attached to it, the break-a-way system would not deploy. But if the lanyard was fastened to an intact portion of the truck, the switch would be activated.
3. Prior to each use, enure that the battery is fully charged using the built-in indicator buttons.
4. The break-a-way battery is charged from the truck's power supply. The standard setup charges the battery off the running light circuit, so care should be taken to run the truck with lights on enough to keep the battery charged. Consult the user manual for instructions about how to charge the battery with a dedicated "hot" circuit from the truck.

E. **Jack**

1. The drop-leg jack should be fully retracted prior to use.

F. **Lightbar**

1. A socket for the optional Pole End Lightbar is provided at the rear of the trailer. The lightbar provides the same lighting functionality as the rear of the trailer, including marker, turn, and stop lamps.

G. **The Most Common Problems**

1. Not unplugging the rear portion of the trailer before extending or retracting it is one of the most common problems encountered in the use of a CZ Pole Trailer. A small chain connecting the 1 1/2" locking pin to the plug is intended to prevent that mistake. The chain is short enough to require the removal of the plug before the pin can be fully removed from its standard position. Do not remove the chain!
2. Jack-knifing the trailer, especially while backing up, is the most common cause of structural damage to pole trailers. All truck-trailer combinations can be damaged while backing up.
   (a) Operators should test the limits of their truck and trailer while a spotter communicates difficult to see pinch points at the rear of the truck.
   (b) Some trucks can turn sharp enough to cause jack-knifing even while going forward. Test for this condition in a large parking lot with the trailer fully extended while a spotter looks on.

V. Maintenance

A. Tires & Wheels

1. Standard maintenance and "preflight" procedures should be followed for the tires and wheels. Note the torque specs on the decals on the front left of the platform section of the trailer. (Wheel torque should be verified after the first trip, which is usually upon receipt of the new trailer.)

B. Lube points

1. The oil seal hubs should be checked daily for proper oil levels through the clear plastic hub cap.
2. The single grease fitting on the jack should be greased once or twice per year, depending on level of use.
3. Each end of the roller axles should be greased with multi-purpose grease every three months, or as needed.
4. The Suspension is rubber bushed and does not require lubrication.

C. Suspension system torque

1. The long lasting rubber-bushed suspension is designed to eliminate all friction producing movement. The elasticity of the rubber bushing allows for the small amount of rotation resulting from spring compression.
2. For proper functioning, the steel core of the bushing must be tightly compressed by the spring hangers, and that required adequate torquing of the spring hanger bolts. Check the spring hanger torque annually. Consult the decal on the front left corner of the platform for torque specs.

D. Break-a-way Battery

1. **The gel cell break-a-way battery is maintenance free, but it does require a properly functioning charging circuit to maintain its charge. Consult the Operator's Manual for charging circuit options.**

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