

## **Safety Precautions**

Ensure by verbal confirmation that all personnel in the area of the VCCT are aware that the expansion roof will be raised or lowered. Inform them of the danger area around the expansion roofs travel. All pneumatic lines are to be disconnected from the cylinders until the time that the roof is to be either raised or lowered. Immediately after the roof is either in the fully up or fully down position, the pneumatic lines are to be disconnected from the cylinders. Before use, visually inspect all hardware for cracks or other signs of damage. Halt all roof lifting operations and notify your supervisor if any signs of non-serviceability are found. Ensure that all pins connecting the lifting mechanism to the trailer are lubricated with wheel bearing grease – CLP may be substituted if no grease is available. Make visual confirmation that the expansion roof is clear of foreign objects such as snow or debris before lowering or raising the roof. Failure to follow these instructions can result in death or severe injury.

### **Lowering the roof (two persons required):**

1. One person is to attach the lifting device to the VCCT overhead support beam, by using a step ladder, while their partner is to stand a short distance away from them, so that they can help the person on the ladder avoid falling, in case of a loss of balance.
2. The person on the ladder should climb to a comfortable height on the ladder and slowly take control of the lifting device from the hands of the person assisting them. Placing one hand on the red painted circle on the lifting device cylinder and the other on the lifting device mount, orient the assembly such that the tabs protruding from the roof are lined up with the holes in the lifting device mount and the piston rod is pointing towards the expansion roof section.
3. Raise the cylinder mount such that the protrusions fit through the holes in the cylinder mount and place the mount as flush with the roof support beam as possible. Slide the quick-detach safety pin (hanging from a lanyard on the support beam) through the holes drilled into the sides of the protrusions. The cylinder should now be fully supported on the support beam of the trailer. Visually and physically inspect that both protrusions are through both holes and that the safety pin is securely fastened into the holes drilled in the sides of both protrusions.
4. Step down from the step ladder and move it under the hinged pin connection (painted green) on the expansion roof. While this is being done, the other partner is to place their step ladder under the roof lifting device. This partner is to slowly pull the piston rod of the roof lifting device towards the hinged pin connection, so that you can attach the end of the piston rod to the expansion roof hinged pin connection.
5. Once you are in possession of the end of the piston rod, align the holes of the hinged pin connection with the holes found in the end of the piston rod. Using the same procedure as before, locate the quick-detach safety pin (hanging from a lanyard in the vicinity of the hinge) and slide it through all of the holes. Insure

- both by feel and sight that all holes are aligned and that the pin is inserted fully. Step down from the ladder and clear the work area of all non-essential objects.
6. Visually confirm that the pressure in the air compressor lines is set to '**0 psi**'. If it is not, adjust it to read '**0 psi**'. Request that your partner attach the pneumatic line to the rear of the roof lifting device. This is done by placing the end of the air hose on the connection found at the rear of the cylinder and compressing (by hand) a spring-loaded ring found on the outside of the air hose fitting, while pushing the fitting onto the air hose. Once the fitting is in place on the rear of the cylinder, let go of the fitting and gently tug the fitting in the direction opposite which you were just pushing. Once you are certain that the air hose is correctly installed, get down off of the ladder and repeat steps 1–6 to install the other roof lifting device.
  7. Once the two cylinders are installed and you and your partner are certain of the correct installation of your roof lifting devices, loudly give warning that the roof is about to be lowered.
  8. Assign your partner to operate the air compressor to increase/decrease the air pressure in the air hoses. Position yourself in an area clear of the roof lifting devices such that you can visually verify that the roof has lifted off of the side doors. Ensure that the electricity supply to the air compressor is turned on and connected.
  9. Give a 'come-on' hand signal to indicate to your partner to increase the air pressure. It is critical that the air pressure be increased slowly (**no more than 10 psi per second**) or severe damage to the trailer and personnel can result. Once it is observed that the roof has been lifted off of the side doors (this is visible by a hand-sized gap between the bottom edge of the roof and the top of the side doors), give the 'stop' hand signal to your partner to advise them to **stop increasing** the air pressure. Under no circumstance is pressure to be released at this time. Ensure ahead of time that you and your partner agree on what hand signal means what action.
  10. Initiate your normal procedure for folding the side doors and floor panels. Secure these panels in the normal fashion.
  11. Making sure that both you and your partner are clear of the swing of the roof, slowly decrease the air compressor pressure at a rate of no more than **1 psi per second**, until the roof is touching the side of the trailer. Assign one partner to stand outside of the trailer to inform passersby of the dangerous nature of the operation.

### **Raising the roof (two persons required):**

1. One person is to be attaching the lifting device to the VCCT overhead support beam, by using a step ladder, while their partner is to stand a short distance away from them, so that they can help the person on the ladder avoid falling, in case of a loss of balance.
2. The person on the ladder should climb to a comfortable height on the ladder and slowly take control of the lifting device from the hands of the person assisting them. Placing one hand on the red painted circle on the lifting device cylinder

- and the other on the lifting device mount, orient the assembly such that the tabs protruding from the roof are lined up with the holes in the lifting device mount and the piston rod is pointing towards the expansion roof section.
3. Raise the cylinder mount such that the protrusions fit through the holes in the cylinder mount and place the mount as flush with the roof support beam as possible. Slide the quick-detach safety pin (hanging from a lanyard on the support beam) through the holes drilled into the sides of the protrusions. The cylinder should now be fully supported on the support beam of the trailer. Visually and physically inspect that both protrusions are through both holes and that the safety pin is securely fastened into the holes drilled in the sides of both protrusions.
  4. Attach the end of the piston rod to the extension roof by aligning the holes of the hinged pin connection with the holes found in the end of the piston rod. Using the same procedure as before, locate the quick-detach safety pin (hanging from a lanyard in the vicinity of the hinge) and slide it through all of the holes. Insure both by feel and sight that all holes are aligned and that the pin is inserted fully. Step down from the ladder and clear the work area of all non-essential objects.
  5. Visually confirm that the pressure in the air compressor lines is set to '**0 psi**'. If it is not, adjust it to read '**0 psi**'. Request that your partner attach the pneumatic line to the rear of the roof lifting device. This is done by placing the end of the air hose on the connection found at the rear of the cylinder and compressing (by hand) a spring-loaded ring found on the outside of the air hose fitting, while pushing the fitting onto the air hose. Once the fitting is in place on the rear of the cylinder, let go of the fitting and gently tug the fitting in the direction opposite which you were just pushing. Once you are certain that the air hose is correctly installed, get down off of the ladder and repeat steps 1. – 5. to install the other roof lifting device.
  6. Once the two cylinders are installed and you and your partner are certain of the correct installation of your roof lifting devices, loudly give warning that the roof is about to be raised.
  7. Assign your partner to operate the air compressor to increase/decrease the air pressure in the air hoses. Ensure that the electricity supply to the air compressor is turned on and connected. Position yourself such that your partner can see you and that you can see the angle that the roof is making with the ground, preferably outside of the trailer.
  8. Give a 'come-on' hand signal to indicate to your partner to increase the air pressure. It is critical that the air pressure be increased slowly (**no more than 10 psi per second**) or severe damage to the trailer and personnel can result. Once the roof has visually been raised above 95 degrees, give the 'stop' hand signal to your partner to indicate that the pressure is not to be increased. **At no time is the pressure to be decreased on this step.**
  9. Initiate your normal procedure for folding the side doors and floor panels.
  10. Slowly decrease the air compressor pressure at a rate of no more than **1 psi per second**, until the roof is sitting on the top of the trailer doors.