Lid Operation and Maintenance

INTRODUCTION

Lid liner castings protect the inside of the crusher lid from the corrosive effects of the material being crushed. The adjustable feed hopper extends through the lid to just above the rotor. The lid with its liners and feed hopper and whatever rock collects on top of it comprises a significant amount of weight. A hydraulic ram cylinder and hand pump are used to raise and lower the lid. CEMCO offers an electric hydraulic pump option. Camlocks around the lid perimeter hold the lid secure during crushing. An inspection door on the lids of some crushers provides quick limited access.

OPENING THE LID

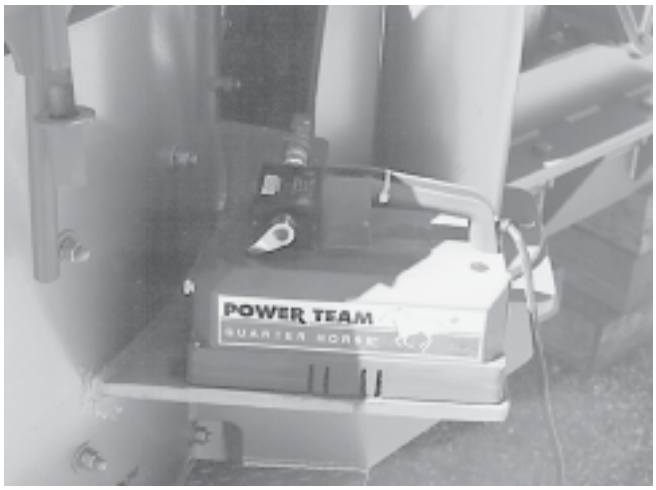
⚠ Always make sure the power is locked in the "OFF" position before opening the crusher lid or inspection door. Make sure there is enough clearance for the lid and feed hopper. Never open a crusher that is not secured to level base or foundation. The weight of some lid/feed hopper assemblies may be enough to tip the crusher if the lid swings out too far.

1. Remove excessive rock and debris from the lid before opening. The bare lid is designed to remain level during opening and closing.
2. Remove the detention pin from each camlock.

Unlatching camlock

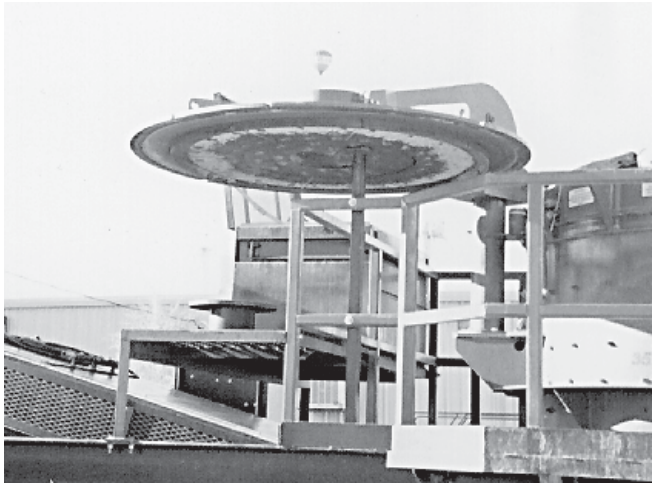
3. To unlatch the camlocks, lift out and up on the camlock handles. Pivot the camlock eyebolt away from the lid. Repeat for all the camlocks around the lid perimeter.
4. Operate the lid jack. Raise the lid until the feed tube liner clears the tub.

⚠ If you notice any resistance, STOP and look for any obstacles which may be causing the resistance.



Electric hydraulic pump unit

5. Simply push on the lid sideways to pivot it out of the way.
6. Gently release the ram pump pressure and lower the lid onto a block, post, or obstacle. On a trailer mounted portable plant, rest the lid on the lid support post.



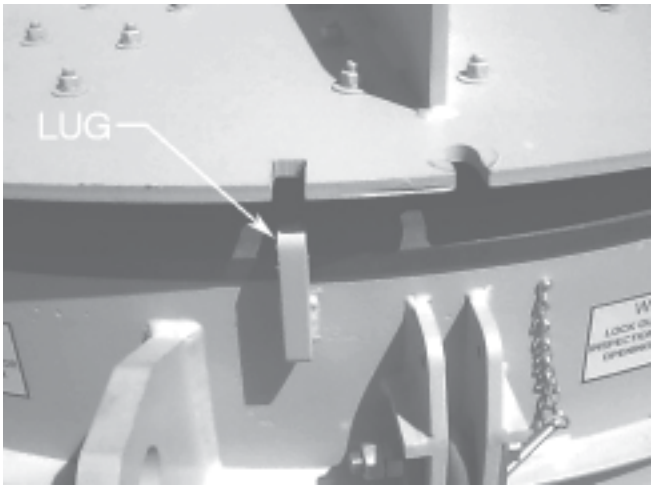
Lid resting on lid support post, portable unit

The lid must be supported when the crusher is open. Never perform maintenance on or around the crusher if the lid is supported by hydraulic pressure only.

CLOSING THE LID

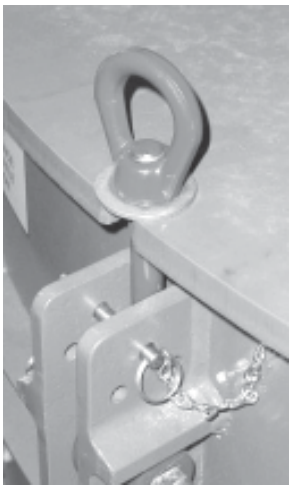
Keep all hands, fingers and obstacles out of the way while closing the lid.

1. Rotate the lid so it is directly over the tub and aligned with the lid lug that is opposite the lid lifting mechanism.
2. Slowly unscrew the pressure relief screw to relieve the pressure in the ram pump and lower the lid into the proper operating position.

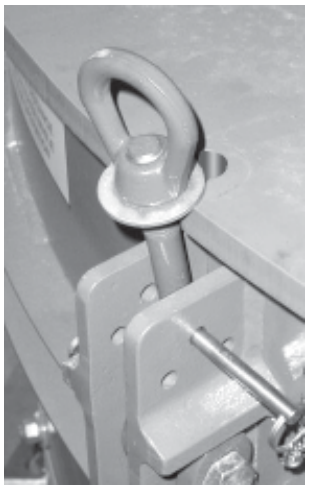


Lug aligned with lid slot

Relieving ram pump pressure



Camlock in lid slot

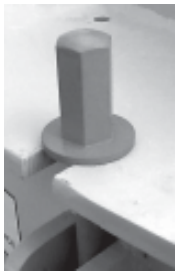


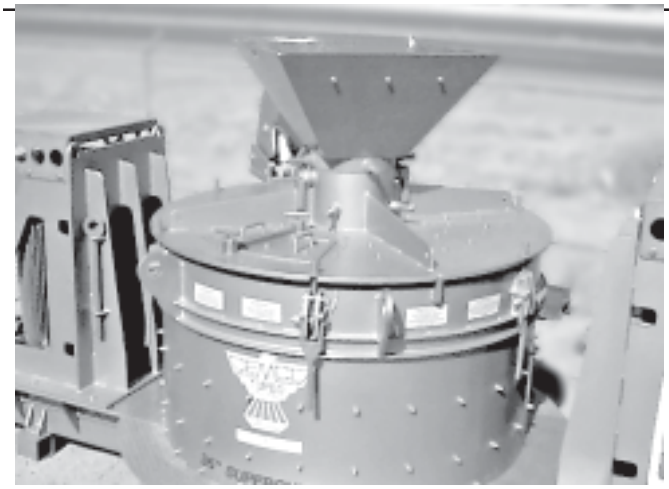
Not seated properly

3. Flip all the camlocks up into the lid slots.
4. Latch the camlocks. The force required to tighten the camlock should be between 60 and 80 lbs. If any camlock does not securely contact the lid or is unusually difficult to latch, it may need adjustment. To adjust a camlock, screw the eye nut at the end of the camlock eyebolt clockwise to tighten or counterclockwise to loosen.
5. Install the detention pins.

Camlock too loose (note gap), too tight

Note: If you have a model made earlier than 2000, then your camlocks are fitted with the long hexagonal nuts on the end instead of eye nuts . If you have T-Screws or IDR-12-EYE, you may want to contact us if you would like to replace these.



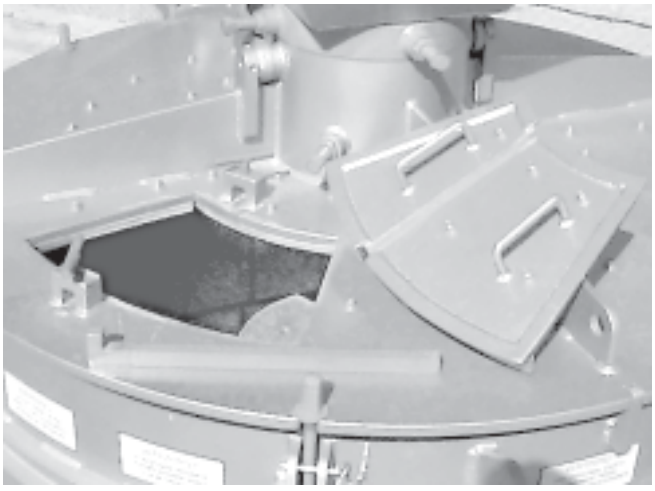


Properly installed lid, Ready to crush!

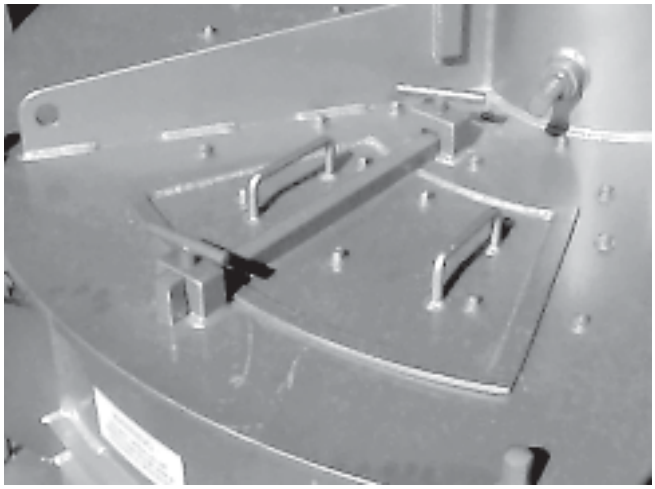
USING THE INSPECTION DOOR

Always make sure the power is locked in the "OFF" position before opening the inspection door. Never operate a crusher with the inspection door open. Be sure to replace the inspection door with the safety bar securely installed **TO PREVENT THE DOOR FROM OPENING DURING OPERATION, OR FALLING INTO CRUSHER.**

The lids of larger crushers include an inspection door for quick visual access to the tub. An operator needs to check the clearance between the feed tube and rotor and inspect material packed in the rotor. To remove the inspection door, loosen the T-screws, slide out the safety bar, lift the door out of its portal and set aside. Replace the door when finished.



Inspection door open



Inspection door closed

REPLACING LID LINERS

Lid liners are the castings which protect the underside of the lid from wear. In most applications lid liners will last a couple of years. Inspect the lid liners and plow bolts weekly and replace them when any part of the liner is reduced to 1/8" thick or less. Always use new grade 8 plow bolts when replacing lid liners. **EVEN THOUGH LID LINERS ARE CASTINGS, TORQUE LID LINER PLOWBOLTS TO THE SPECIFICATION FOR MACHINED PARTS.**

In dry materials like a very dry sandstone, the plow bolt heads may wear quicker than the casting they support. If they wear enough, the casting may fall off into the crusher. If the plow bolt heads show excess wear, replace them.

Lid liners

1. Raise the lid and support it.
2. Remove the nuts on top of the lid. The lid liners should fall off as the bolts are removed. If you are replacing just the fasteners, replace them one at a time to avoid removing the casting.
3. Install the new liners with new fasteners.
4. Make sure there is still good lid clearance over the crusher tub with the new castings.

ADDING HYDRAULIC JACK OIL

The lid lift hydraulic oil level should be checked at least every six months or if the pump quits working. Decreasing pump performance is indicated by more pump strokes (more time for an electric pump) required to raise the lid. Drastically reduced performance may indicate a hydraulic leak somewhere in the system. Inspect all the hoses and fittings. Look for evidence of leaks and make any necessary repairs.

Follow these steps to add hydraulic oil

Use AGMA 1 ISO 46 or standard hydraulic jack oil.

1.Retract the cylinder. Overfilling is haz- ardous, fully retract cylinder before adding oil.

2.Clean the area around filler cap. Remove the filler cap and position the pump with the head down and filler hole up.

3. Insert a clean funnel with a filter into the filler hole.

4. Fill the pump with a high grade, approved hydraulic oil.

5. Place the pump on its base without the filler cap installed and drain excess oil.

6. Test the sytem performance before putting the crusher back into service.

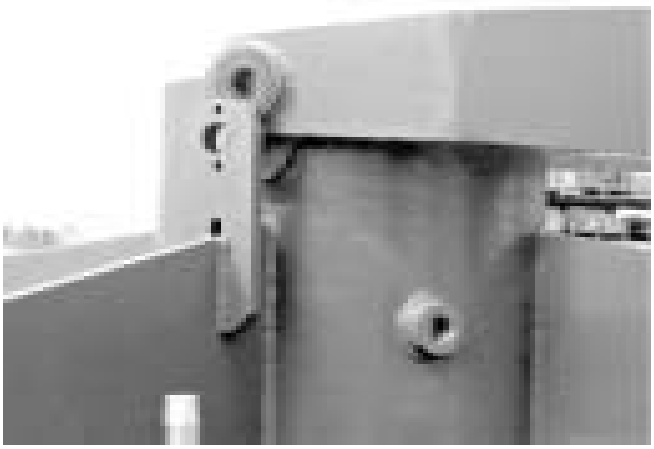
REPLACING THE URETHANE BUSHINGS

CEMCO model 80 and model 96 crushers utilize ten urethane bushings to dampen the vibration between the crusher and the lid lift apparatus. Over time, the urethane bushings may “wallow” to one side. It is perfectly acceptable to remove the covers and rotate the bushings in place. It is also acceptable to apply lightweight oil to the pins before inserting them into the urethane although this may not be necessary. Do not immerse the bushings in solvent or allow chemicals or cleaners to pool around the urethane. If the urethane comes in contact with a solvent, simply wipe it with a clean rag.

1. Lower the lid and rest it on the tub.
2. Remove the bolts that hold the astralloy taper pins to the bracket on the lid gusset.

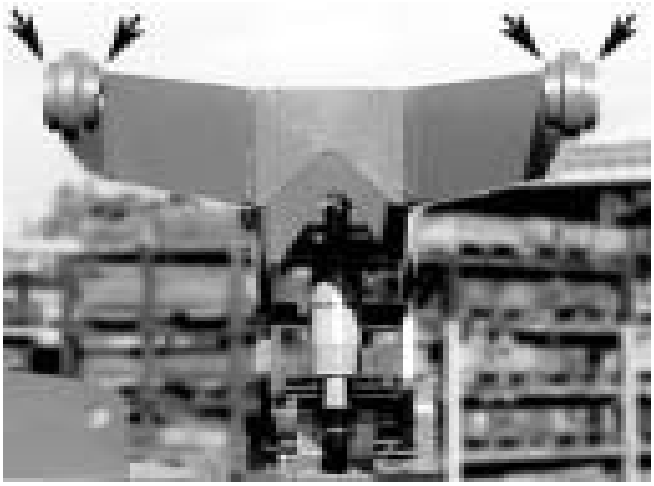
Astralloy taper pins

3. Thread the bolts into the tapped holes on the taper pins. Tighten the bolts evenly to dislodge the pin and remove it.
4. Once both pins are removed, use the hydraulic pump to raise the arm just enough to clear the lid.



Raise the lift arm just enough to clear the lid

5. Remove and replace the urethane bushings.



Urethane bushings installed in the lift arm tips

6. Lower the arm back down to the lid and install the Astralloy taper pins back in their holes. For final assembly, tap the taper pin with a brass drift to seat it into the taper. Tighten the bolts to hold the pins in place.

7. Remove the covers at the pin locations on the arm and lift base to access the remaining bushings. Sometimes the bushings are easy to remove. It may be necessary to tap the pin out a few inches on either side to remove and install the bushings. Using a prybar, it is possible to raise the arm just enough to remove the weight from the long rear pivot pin. As long as there is no pressure in the hydraulic system, it is easy to replace the bushings at the upper and lower ram pin locations.

Urethane bushings installed in the arm and base

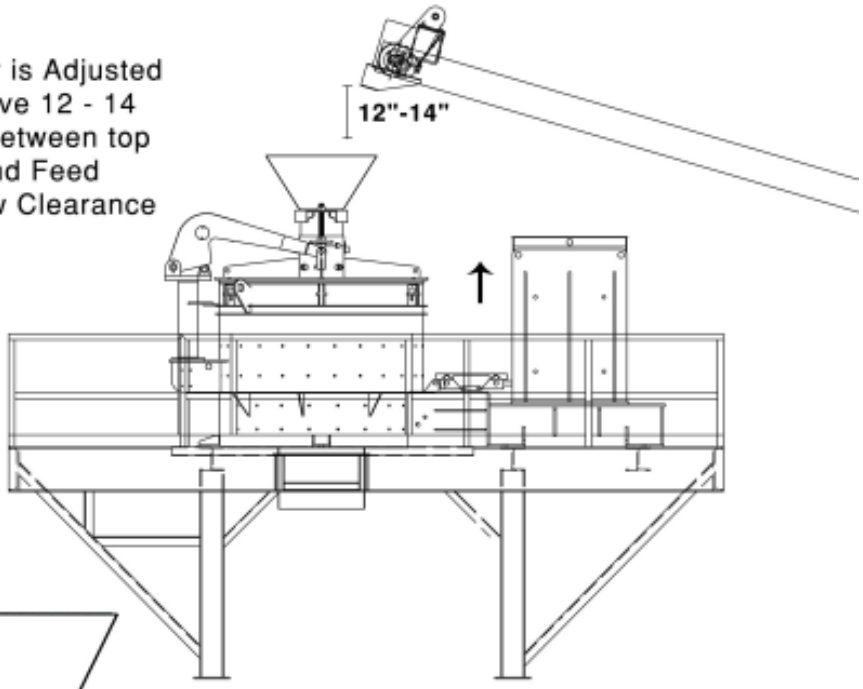
8. Reinstall all the covers. Use 3/8 by 1 Cap screws with lockwashers.

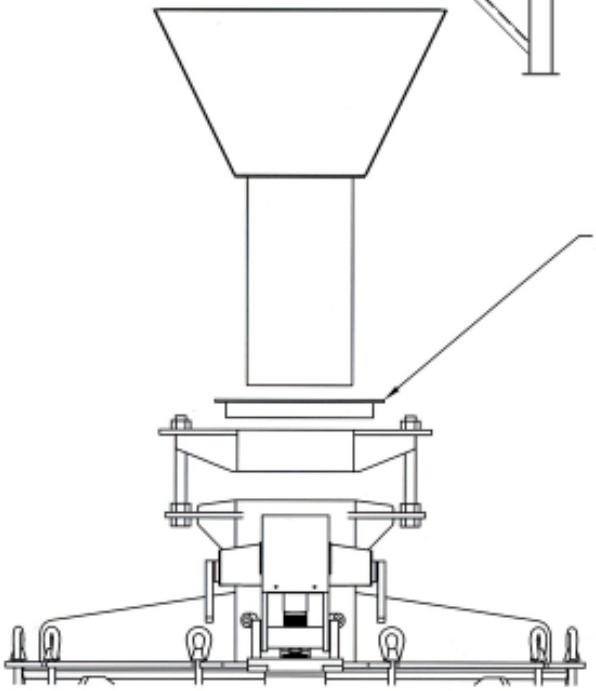
DURING CRUSHER OPERATION

There should be no pressure in the hydraulic system during crusher operation. Any pressure in the system will diminish the dampening effect of the urethane bushings. It is important to inspect the entire lift linkage after the crusher is operated. It is also a good idea to check all the fasteners that hold the covers in place at each pin location. Periodically remove the covers and inspect the bushings. Models 80 and 96 have urethane bushings.

⚠Feed Hopper Set-Up

After the Feed Hopper is Adjusted to Rotor or Table, Leave 12 - 14 Inches of Clearance Between top of the Feed Hopper and Feed Conveyor Belt to Allow Clearance to Open Crusher Lid.





CEMCO, Inc. Models T-80 & T-96 Require HAJ-80354(T-80) or HAJ-96394(T-96) 2" Spacer if Equipped with a SCK-35-4 or SCK-39-4. This Will Aid the Operator with Proper Feed Tube Adjustments.