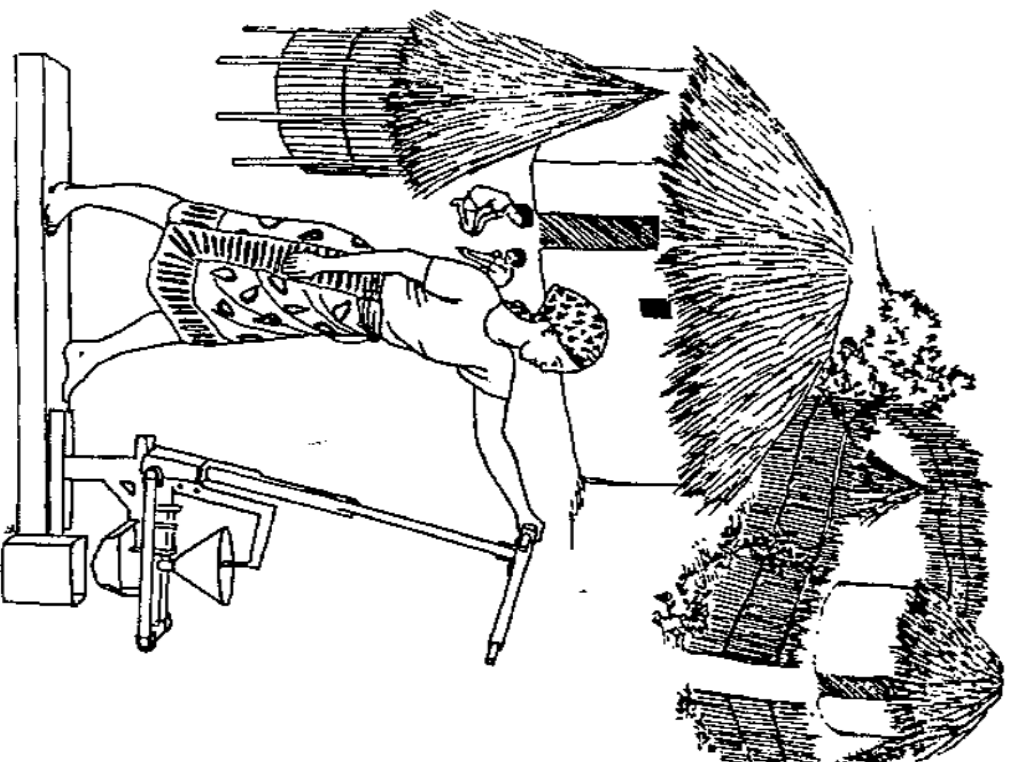
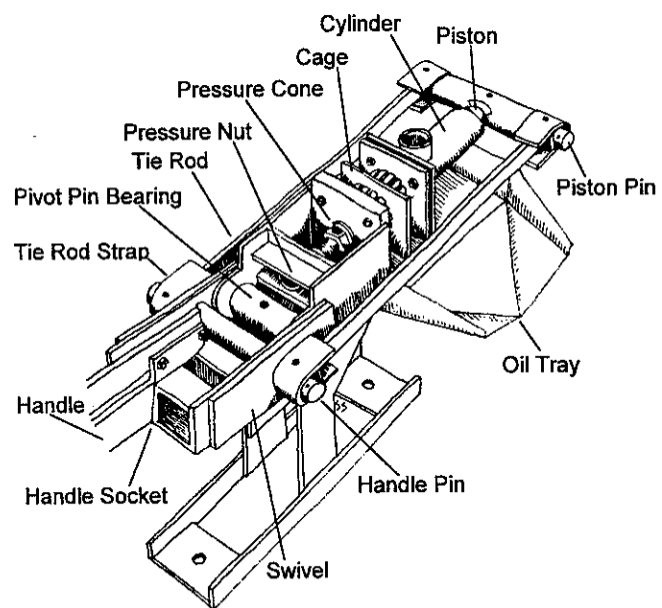


How To Use Your Ram Press

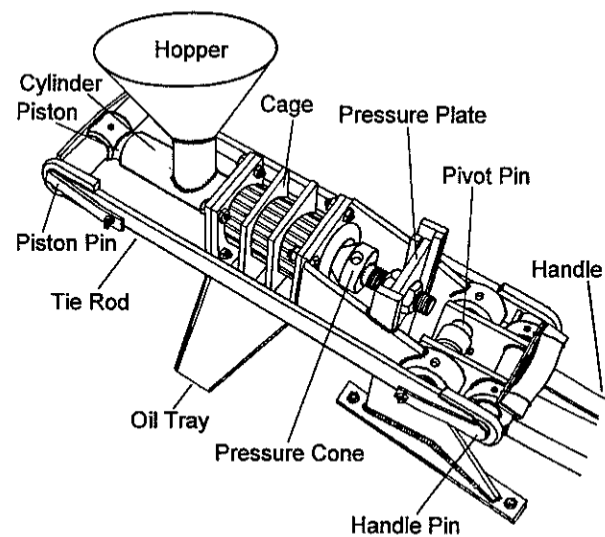


Appropriate Technology International

Two kinds of presses



The CAMARTEC BP-30



The CAPU

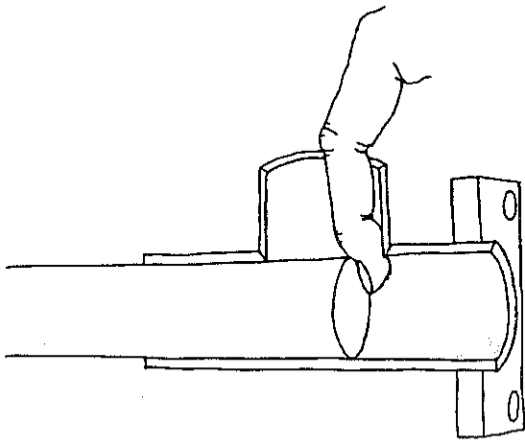
Many kinds of seed

With the ram press, you can make cooking oil from different kinds of seed.

- sunflower
- sesame
- groundnut
- coconut
- many other oilseeds

Safety

- Keep hands away from the machine when it is working.
- Do not let the handle fall on you or others.
- **Do not put your finger in the cylinder. The press can cut your finger off!**



Pressing sunflower seed

- Use seed that is soft and dry. **Hard seed will break the press!**
- If the seed is damp, dry it in the sun for two days then store it for a week before pressing.
- Store seed in a dry place, off the damp ground and away from rats. Wet seed will get moldy.
- **Never press moldy seed. It can make you sick.**

Getting the seed ready for pressing

Winnow the seed on a windy day. Pick out the stones.



Heat in the sun for 15 minutes.

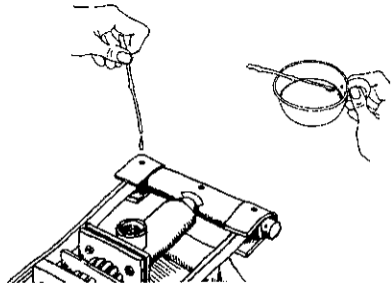


If there is no sun, heat over fire.



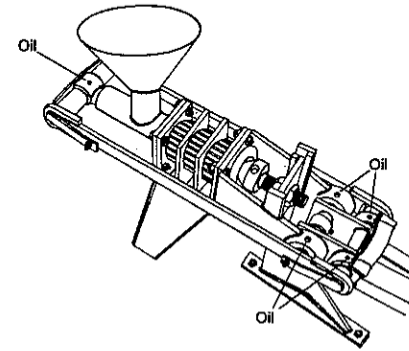
Getting the press ready

Use oil that you have pressed and cleared to lubricate the press.

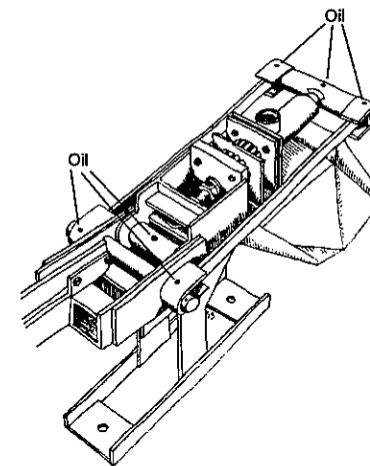


IMPORTANT: Lubricate the press every hour when you are using it!

Put oil in the holes.

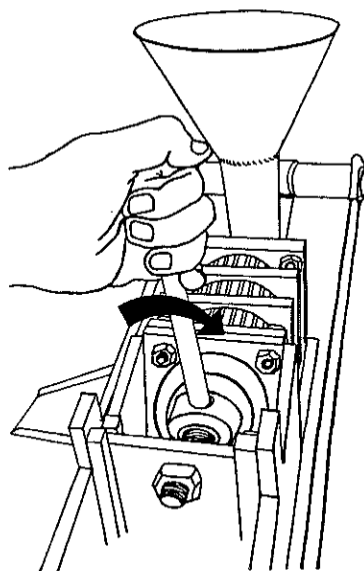


CAPU



CAMARTEC

Screw the cone all the way in and fill the hopper with warm seed. Move the handle until the cage fills up



Screw cone in

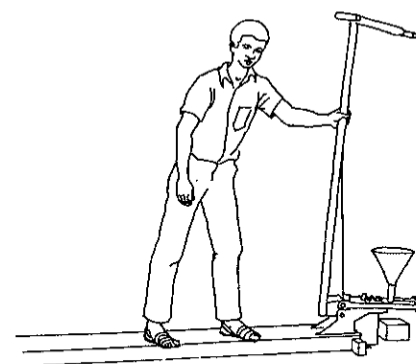
Operating the press

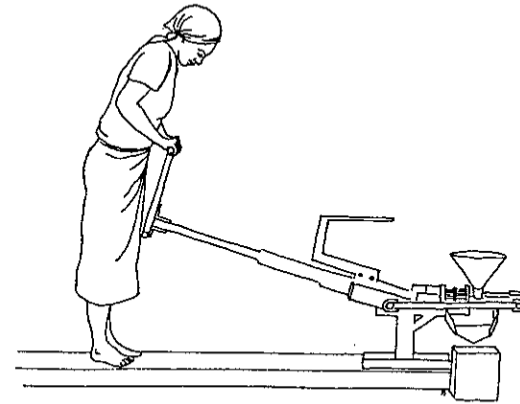
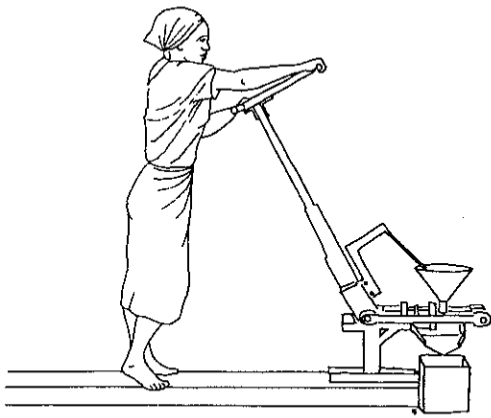
Push the handle down:

- **CAPU** - 10 times each minute
- **CAMARTEC** - 15 times each minute

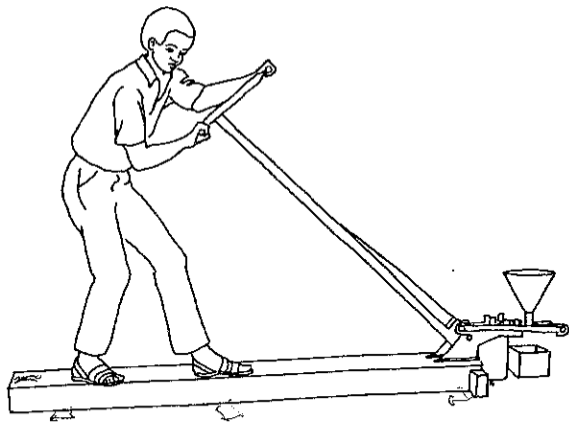


Step 1: Seed falls into the press.

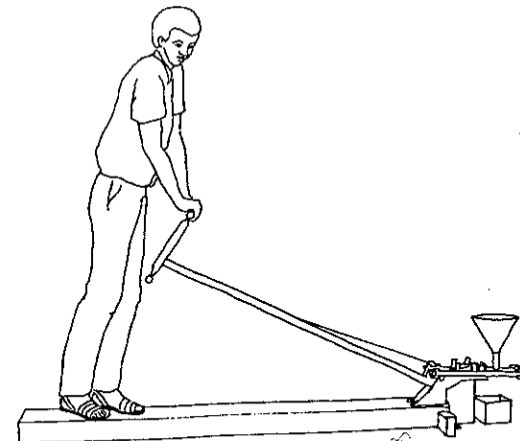




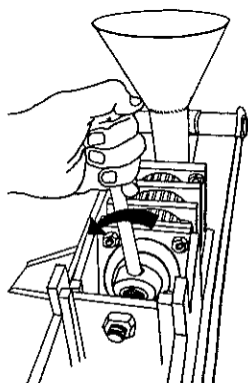
Step 2: Making pressure in the cage.



Step 3: Oil and cake come out. **Go slowly here.**



When pressing is difficult, screw the cone out. **Make sure to screw the cone out before the pressing gets too hard or the handle could get stuck.**



Screw cone out

- Press a bit more, then screw the cone out a bit more.
- Do this until the pressure in the cage is steady and crushed seed (cake) comes out of the cage every time you pull the handle.
- If the pressure in the cage is too low, screw the cone in 1/4 turn.

Pressing Other Kinds of Seed

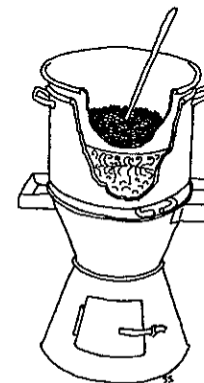
Sesame

- Heat longer than sunflower.
- Spread in the sun for 30 minutes.
- Press slowly. Use a bouncy stroke.
- Pull the handle down 4 times each minute.

Groundnut

- Use a double boiler to heat the nuts for 1/2 hour. (Other nuts can be heated in this way also.)
- Press slowly and gently. Use a bouncy stroke.
- Pull the handle down 3 times each minute.

Water boils in the bottom pot of a double boiler

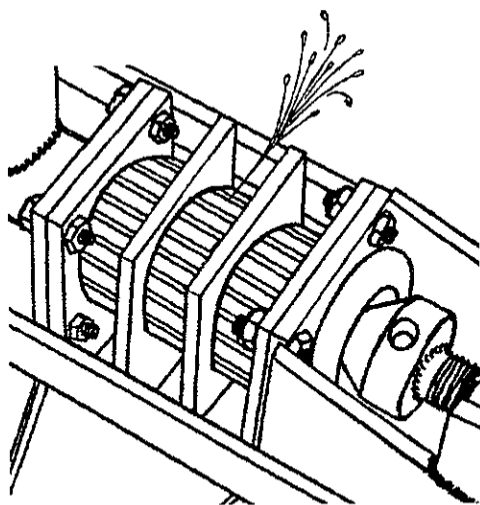


Coconut

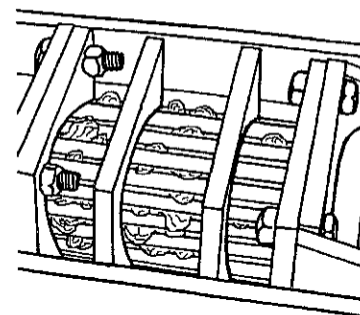
- Start early in the morning. Coconut meat that is left overnight will spoil.
- Take the meat from the shell and shred it finely.
- Dry the meat in the sun for 6 hours.
- Press the warm meat slowly.

Problems

Spitting: If oil spits out of the cage with a hissing spray, the pressure is too high. Unscrew the cone.



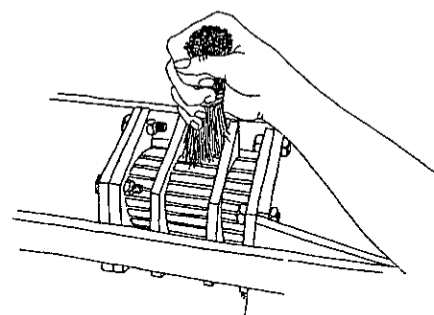
Spitting



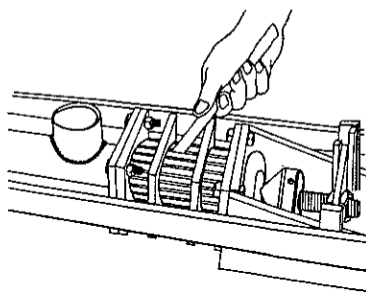
Cake coming out of the cage

Clogging: If cake starts to come out of the cage, the pressure is too high.

- Unscrew the cone or the cage will clog.
- If no oil comes out of the cage and the cake is oily, the cage gaps are clogged up with cake.
- If the cage is clogged, empty it and clean with a brush and boiling water, then clean the cage gaps with a knife or sharp tool.



Clean the cage with a brush and boiling water



**Clean the cage gaps with
a knife or sharp tool**

Why the cage clogs

You are pressing too hard. Screw the cone out.

The seed is too wet. Dry the seed in the sun for two days. Store it for a week, then press it.

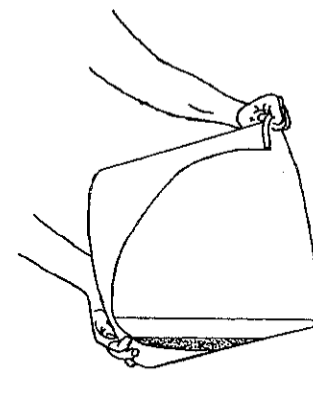
The seed is very old. Winnow the seed again. Do not heat it. Press gently.

At the end of the day

- Unscrew the cone all the way. Put cake in the hopper and work the handle until all the hard cake is out.
- Clean up the cake and cover all oil containers.
- Make sure that the bolts on the press are tight and that no welds are cracked.

Clearing and filtering the oil

- Let the oil settle for one day after you press it.
- Pour the oil off the top of the sediment.
- Press the sediment with seed to get the oil out of it.



**Pour off oil and
leave sediment behind**

Using a bucket filter

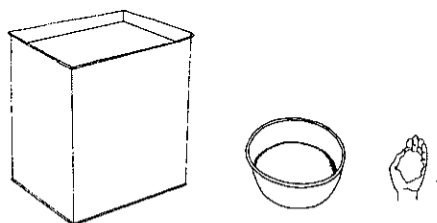
- Tie the cloth bag tightly to the end of the pipe.
- Cover the filter with plastic to keep out dust.
- The first oil to come out will not be clean. Put it back into the bucket.
- Wash the filter with hot water only. Do not use soap.



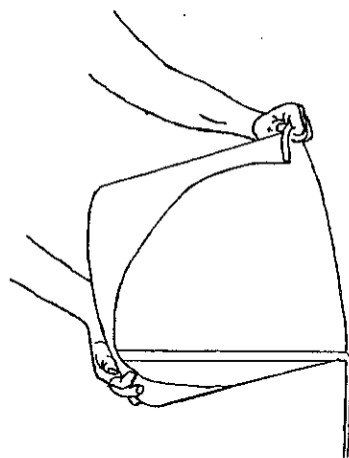
Bucket filter

Clearing oil by boiling

- Heat the oil with one liter of water and one small handful of salt.
- Boil for 20 minutes.



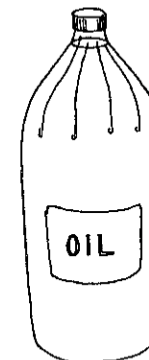
Boil: oil + 1 liter water + 1 handful salt



**Pour clean oil off
of the water**



- Heat again to make sure that there is no water in the oil.
- When the oil is ready, fill **clean and dry bottles** to the top, seal them tightly, and store the bottles in a cool place.



Groundnut oil should be boiled and cleared in this way or it will spoil in just a few weeks.

- Pour the oil off the water.
- **Do not pour any water off with the oil.** Water in the oil will make it spoil.



Using seed cake to feed animals

Sunflower seedcake is a very good animal feed. Cake from sesame, groundnut, and coconut is also good food for people.

Cake can go bad easily, so feed your animals very soon after you press it. If you must store seedcake, dry it in the sun first.

Do not eat moldy cake or feed moldy cake to your animals! It will make you and your animals sick. If the cake is moldy, use it for fertilizer.

Feeding cattle

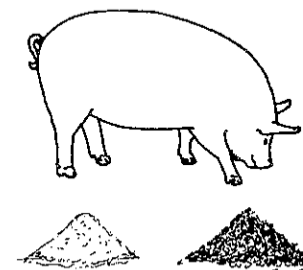
Add 2 kilograms of cake to the cow's feed each day.



Fodder + 2kg cake

Feeding pigs

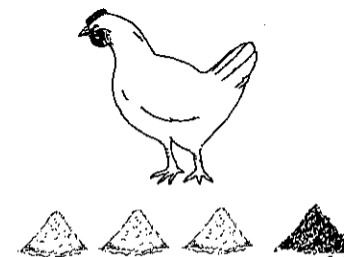
Feed pigs 1 part cake to 1 part grain or grain residue



1 part grain + 1 part cake

Feeding chickens

Feed chickens 1 part cake to 3 parts grain or grain residue.



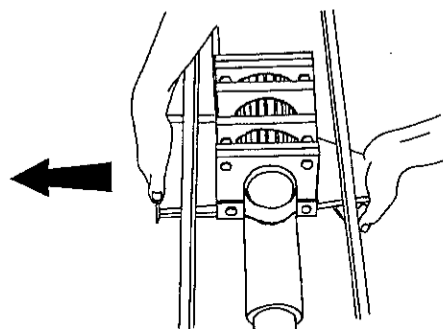
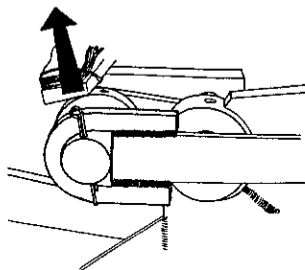
3 parts grain + 1 part cake

Taking care of your press

- Always keep the press well lubricated.
- Clean the press every 2 weeks and at the end of the season.
- Never leave hard cake in the cage.

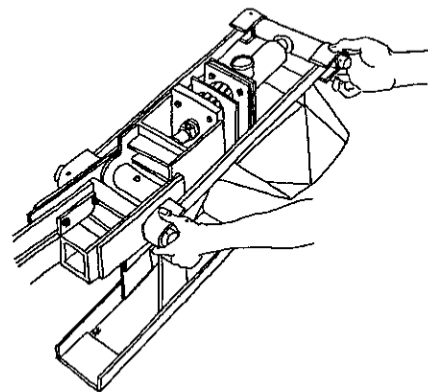
Taking the press apart

CAPU: Slide out the oil tray.

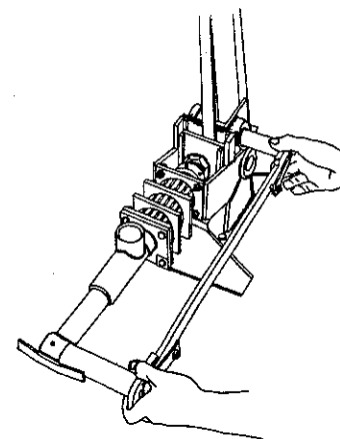


Pull out the split pins.

Take off the tie rods.

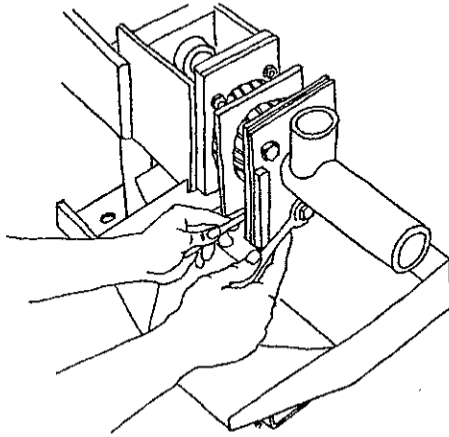


CAMARTEC

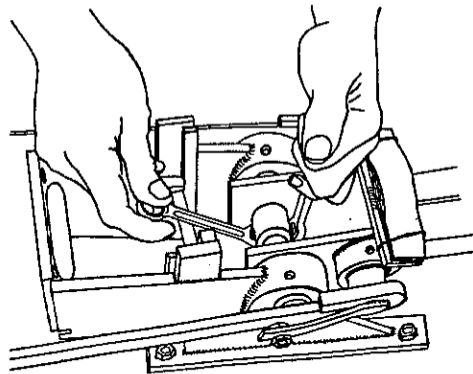


CAPU

Unbolt the cage.

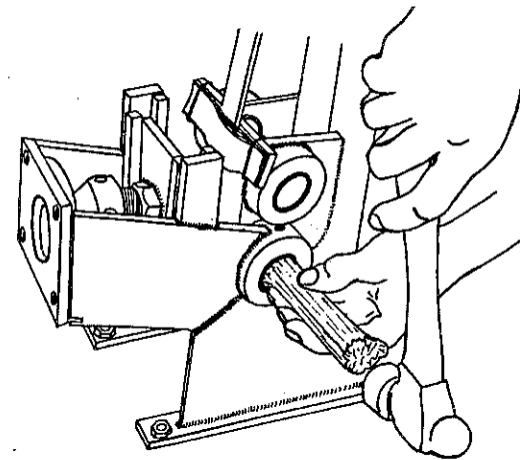


Loosen the pivot pin clamp to remove the CAPU handle.



CAPU

Use a stick to push the pin out. **Never hit the end of the pin with a hard hammer** or you will damage it.



Push out the pivot pin

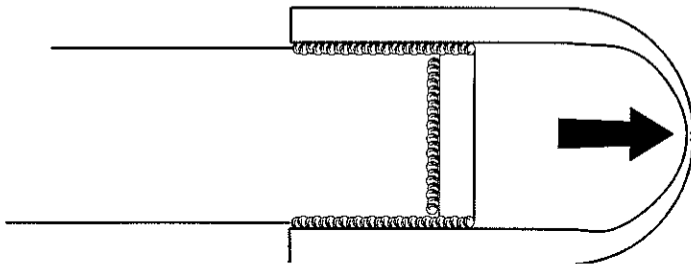
While the press is apart, put the cage and the pressure cone in boiling water. Then scrub them clean.

When press parts wear out

Replace worn out press parts and you will be able to use the press for many seasons. You may want to take the press to a metalworker who knows how to repair it.

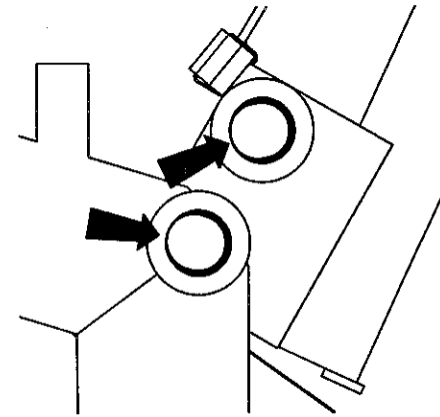


Worn out piston and cylinder



Worn out CAMARTEC tie rod

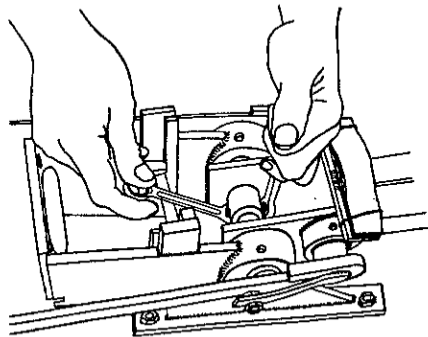
Never use a CAPU press when the brass bushings have worn out.



Worn out CAPU bushings

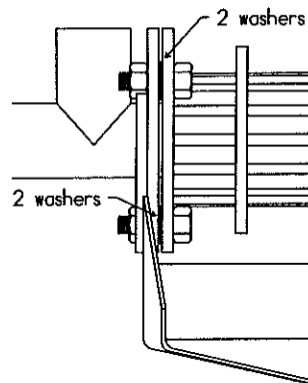
Putting the press back together

When you put the press back together, make sure to tighten the clamp on the CAPU.



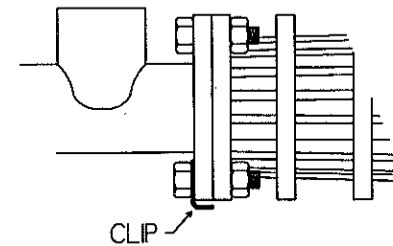
Tightening the CAPU clamp

On the CAMARTEC, put the washers back between the cylinder plate and the cage plate.



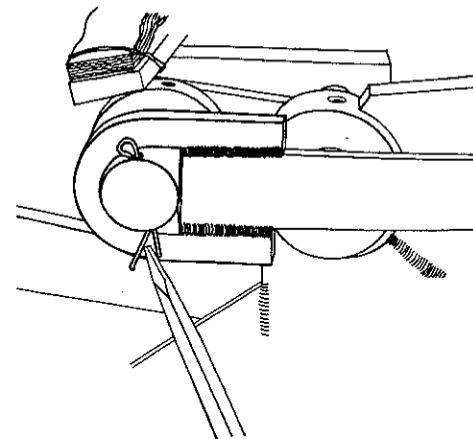
Put CAMARTEC washers back

Put the oil tray clips back on the CAPU.



CAPU oil tray clips

Make sure to spread the ends of the split pins.



Bending open a split pin



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