

**KNOWLEDGE BASE**

Article Type: Instructions

**CPM Vibrator and Gearbox
Couplings Installation for Models,
30, 40, 50 and 60.****Description:**

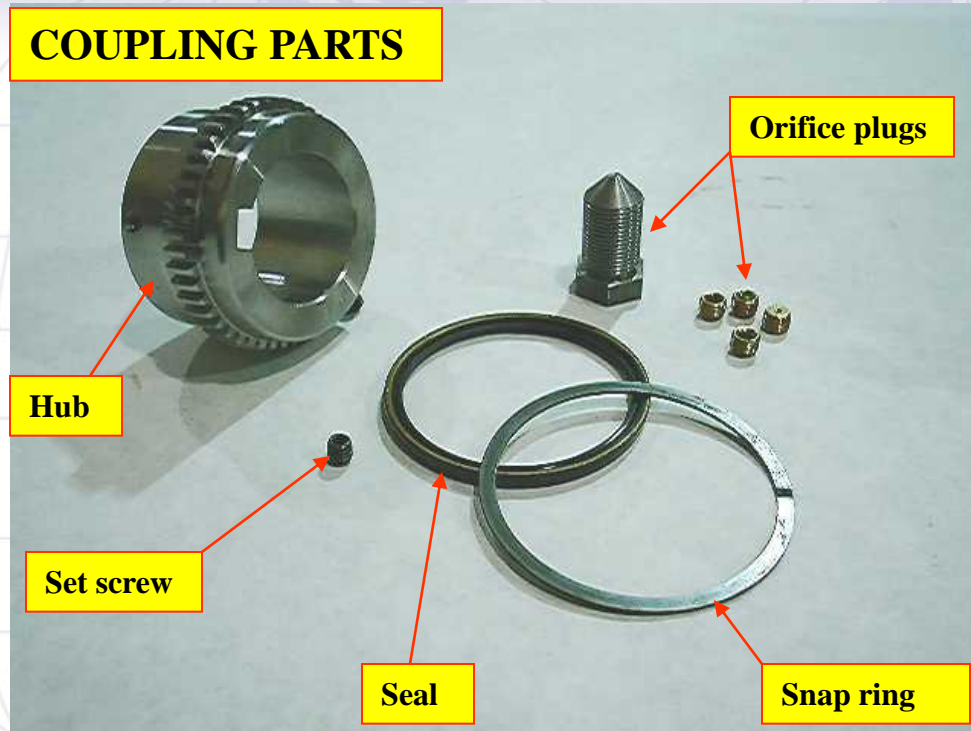
Instructions on “How to” properly install a new couplings on vibrators and gearboxes.

WARNING

Never work on, clean or service this unit, control panel or any machine or open or remove any protective cover, guard, grate, door, or maintenance panel until the power or energy sources has been turned off, locked out / tagged out, and all moving parts have come to a complete stop and or blocked to prevent movement. Machinery is dangerous - avoid personal injury and or death by following manufacture, Local, and OSHA safety procedures. Contact Columbia Machine for safety decals, guards, horns and beacons.

INSTALLING COUPLINGS ON CPM VIBRATORS AND GEARBOX

COUPLING PARTS



PARTS NEEDED

When installing new couplings on your CPM.

- Two complete timed couplings. Each coupling will have the following parts.

Two hubs

Two seals

Two snap rings

One outer shell (**Not shown**)

Six 5/16 x 5/16 set screws per coupling

NOTE: If you are installing new vibrators make sure they have new cleaned orifice plugs installed. Orifice plugs are shown for reference only and should be installed in new vibrators. With existing vibrators orifices should be cleaned before operating.

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TOOLS NEEDED



- Allen wrench
- Straight edge
- 100 grit emery cloth
- Hand file

Loctite used on coupler to shaft (609 or 603)
green in color.
The set screws will use (242) blue in color.



Steps for Installing Couplings on a CPM Machine

- Clean and inspect vibrator and gear box shafts
- Unpack couplings and inspect for match marking and necessary set screws, seals, snap ring.
- Remove snap ring and set screws.
- Hand fit new keys to key-ways. (**NEVER REUSE OLD KEYS**).

Dry fitting hubs:

Slide one hub of coupling on vibrator shaft and the other hub on the gear box shaft. It may be necessary to sand or file the key-way slot or the bore so the hub will slide on by hand. Make sure **NOT** to over-size the bore, these hubs should fit tight but should **NEVER** be forced on or hammered in place. Remove hub and key and set aside.

- Install your vibrators using the vibrator installation and aligning process. Once this is completed now you can start installing the couplings.
- Clean the shafts and coupling hubs with Loctite or equal type of cleaner.
- Use 609 for 70 degree and colder and 675 for 70 degree and higher. 675 is the best all around for both hot or cold weather. 609 has 10 min working time 675 has 20 min working time.
- Install counter weights on the vibrator shafts.
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Steps for Installing Couplings on a CPM Machine

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- **Install snap ring and seal on one side and the shell. Slide the other snap ring and seal installed on the other shaft before installing the second hub.**
 - Once everything is clean, cover the bottom of key-way slot with Loctite (675) and install key.
 - Apply a coat of 675 Loctite to entire shaft, it may be necessary to spread Loctite with your finger around the shaft, only in the area where the hub will be placed.
 - Now slide the hub onto the shaft so the hub end is even with the vibrator shaft end.
 - **Use 242 Loctite in set screw holes. Install set screw in key-way hole first, then install one set screw in the deep hole at 90° from key.**
 - Leave the second set screw out at this time.
- Place the gear box in machine and align the shafts.**
- Align the shafts by placing the gear box in it's approximate position. Best coupling performance is obtained when the alignment is checked with a dial indicator.

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Steps for Installing Couplings on a CPM Machine

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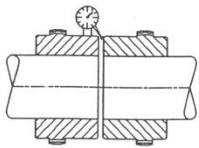


Figure 1.

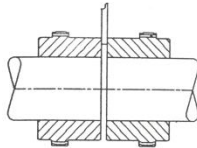


Figure 2.

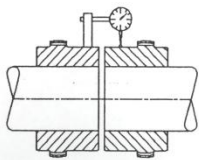


Figure 3.

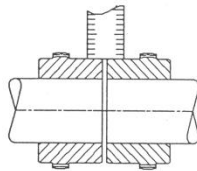


Figure 4.

NOTE: Always rotate the hub on which the indicator is mounted.

• **Angular Alignment.**

Check by mounting indicator on the body of one hub and placing the pointer on the end face of the other hub. (See fig. 1.) Adjust gear box until the best alignment is obtained. As an alternate method, insert a feeler gage between the hubs at four points approximately 90 Deg. apart and adjust the gear box. (See fig. 2.)

B. Parallel Alignment.

Mount the indicator on the body of one hub and place the pointer on the body of the other hub. (See fig. 3.) Adjust gear box until the indicator reads the same at four points approximately 90 Deg. Apart As an alternate method, place a straight edge across one hub body and adjust the gear box until the straight edge rests squarely on the other hub body. (See Fig. 4.) This should be done at 90 Deg. intervals around the hubs.

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Steps for Installing Couplings on a CPM Machine

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- After gear box has been pushed in place and aligned and bolts torqued, slide shell over the first hub and line up with the second hub using the key-ways as a guide to make sure shafts are timed (in line with each other). Pushing the shell all the way over now install the seal. Using a small bladed screwdriver push the seal into place. After seal is seated now install the snap ring, once installed use the small screwdriver to seat snap ring in groove.
 - Finally install the second set screw. This is left out so the seal is not damaged when sliding it in place.
- Removal of coupling hub.** Install a gear puller for pulling hub off shaft, apply pressure. It will be necessary to use heat. ONLY heat the hub to brake the bond of the Loctite. Heat in one spot of hub only, once you hear it pop you should be able to use the gear puller and pull the hub off the shaft. **Removal not shown.**

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STEP 1 Clean shaft



STEP 2 Install counter weight



STEP 3 Install snap ring and seal



STEP 4 Use 603 loctite in key-way

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STEP 5 Install key into key-way



STEP 6 Apply 603 loctite to shaft and key



STEP 7 Install hub so it is flush with end of shaft



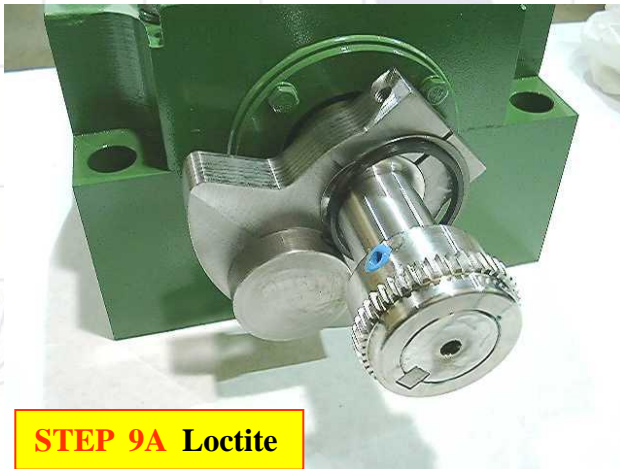
STEP 8 Apply 242 Blue loctite to set screw and hole in key-way, and install this set screw first



Set screw installed



STEP 9 Install first set in other hole using 242 blue loctite



STEP 9A Loctite



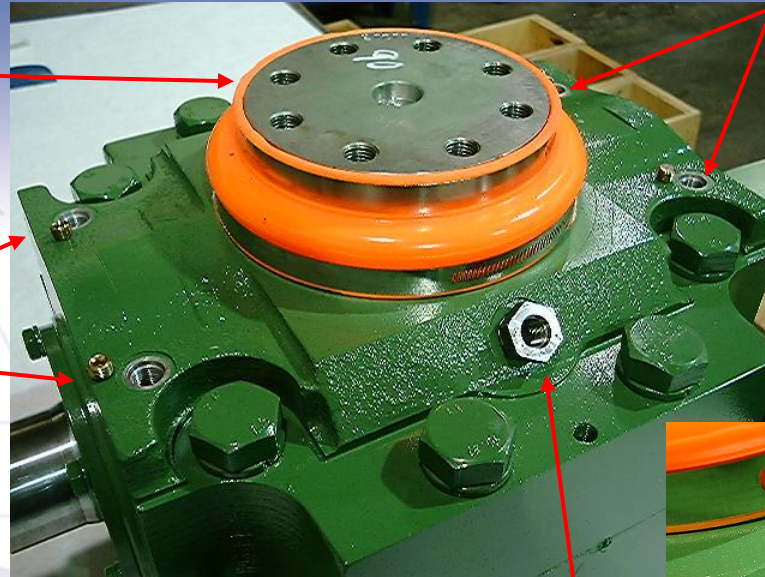
STEP 10 After sliding seal into place on the hub install second set screw with 242 loctite

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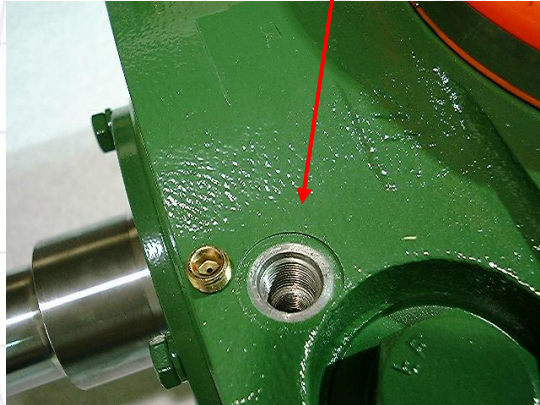
Vent hole this side

Install small orifice plug at all four corners, this end.

Small orifice plug holes



Large orifice plug



When installing new vibrators make sure that the orifice plugs have been cleaned and installed in all five places. There are four small orifice plugs one at each corner and one large one in the center. We will only be using two of the small orifice plugs for incoming oil and cover the others with permanent O-ring plugs.