



# Mill - Spindle - Lubrication Oil - Collection Test

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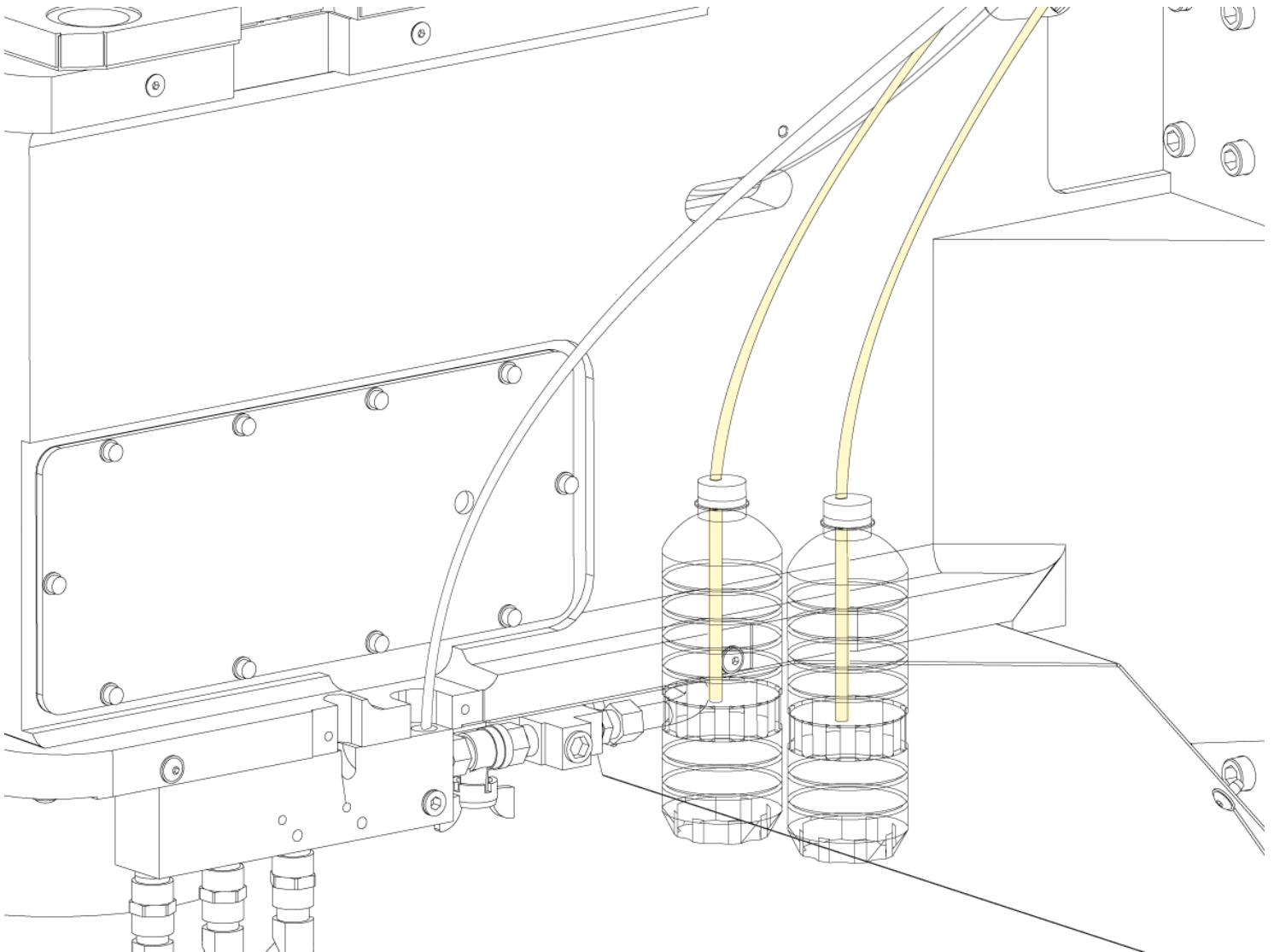
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## Mill - Spindle - Lubrication Oil - Collection Test - Introduction

This procedure tells you how to make sure lubrication oil gets to the spindle. Do this procedure when you have these conditions:

1. You troubleshoot the spindle lubrication system.
2. You have a Bijur Mechanical or minimum lubrication spindle oil-pump.
3. You plan to install a replacement spindle.

This procedure is shown on a machine with a 50-taper spindle. For 30- and 40-taper spindles you need only one collection bottle.



## Prerequisites

You must install a drip-sight glass on a lubrication system that does not have a drip-sight glass.

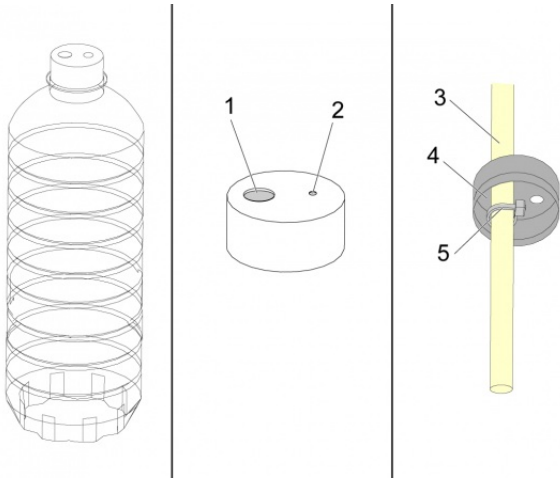
### Tools Required:

- (2) Water Bottles, 16 ounce (473 ml)
- Cable Ties
- Drill
- 1/4" drill bit
- 1/16" drill bit

## Mill - Spindle - Lubrication Oil - Collection Test

This procedure tells you how to make a collection bottle. Use this bottle to collect the oil that goes to the spindle. Make two collection bottles for 50-taper spindles that have two lubrication ports.

### STEP 1




Make collection bottles from empty 16-ounce (473 ml) water bottles.


Make sure the inside of the water bottles are dry. Make sure there are no cracks or leaks in the bottle.

Drill a 1/4" hole [1] and a 1/16" vent hole [2] in the cap of the water bottles.

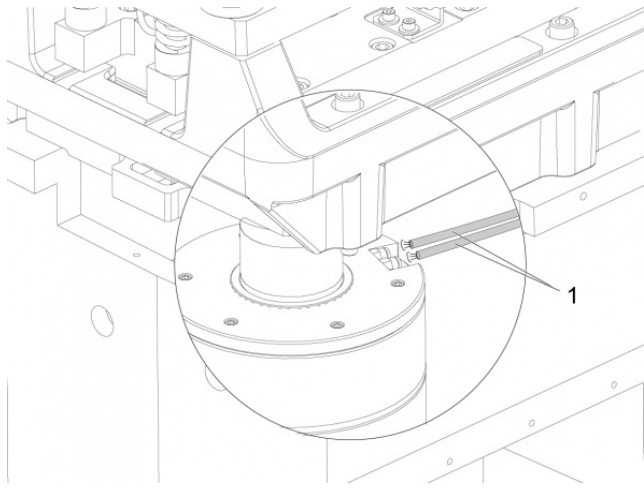
Insert the spindle oil tube [3] through the 1/4" hole in the bottle caps [4].

 **Note:** The tube must fit tightly. The diameter of the vent hole must be 1/16". This creates the correct amount of back pressure in the collection bottles during the test.

Loosely wrap a cable-tie [5] around the tubing approximately 3" (76 mm) from the end of the tube [3]. This makes sure the tube does not fall out.

 **Note:** Do not make the cable-tie too tight. This can cause damage to the tubes.

## STEP 2



Disconnect the spindle oil tubes [1].



In **MDI** mode, command the spindle to run at low speed, for example, 5 RPM.

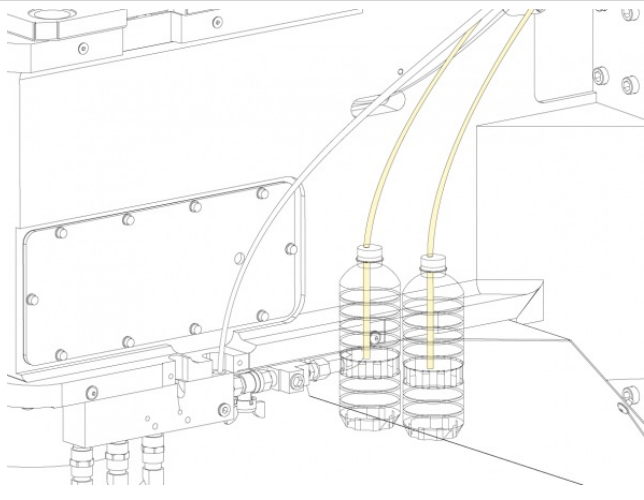
Make sure air flows out of the tubes.

If air does not flow, make sure no kinks are in the tubes.



Press **[RESET]** to stop the spindle.

## STEP 3



Find the access hole on the right side of the casting for the spindle head.

Pull the spindle oil tubes down and out through the access hole.

Attach the bottles to the bottle caps.

Attach the bottles to the side of the spindle head. You can use cable-ties.

## STEP 4



In **MDI** mode, command the spindle to run for (4) hours.



**Note:** Set the **[Spindle Speed Override]** to 0%.

%

S5 M03;

G04 P60.L240;

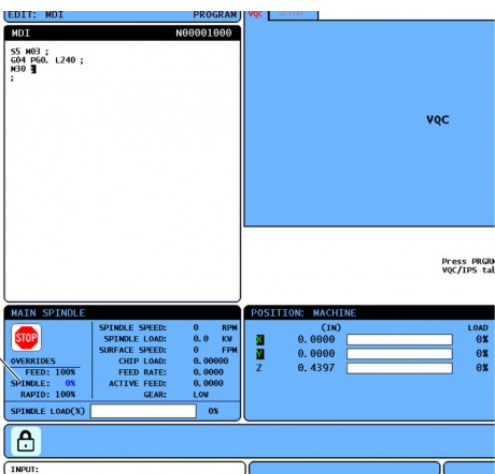
M30;

%

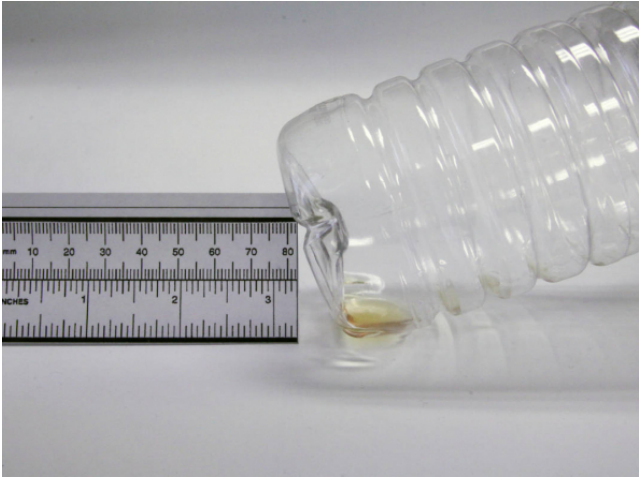


**Note:** For the Bijur mechanical-oil pump lubrication system, jog the axes. Check the axis lubrication system for leaks.

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## STEP 5



For the Bijur mechanical-oil pump lubrication systems, make sure that (6-10) drops of oil are visible in the drip-sight glass for each pump cycle

For the minimum lubrication oil pump systems, make sure that (3-5) drops of oil are visible in the drip-sight glass for each pump cycle

After 4 hours, look at the bottles.

If the spindle-lubrication system operates correctly, oil is in the bottom of the collection bottles.

Compare your results to the image shown here.