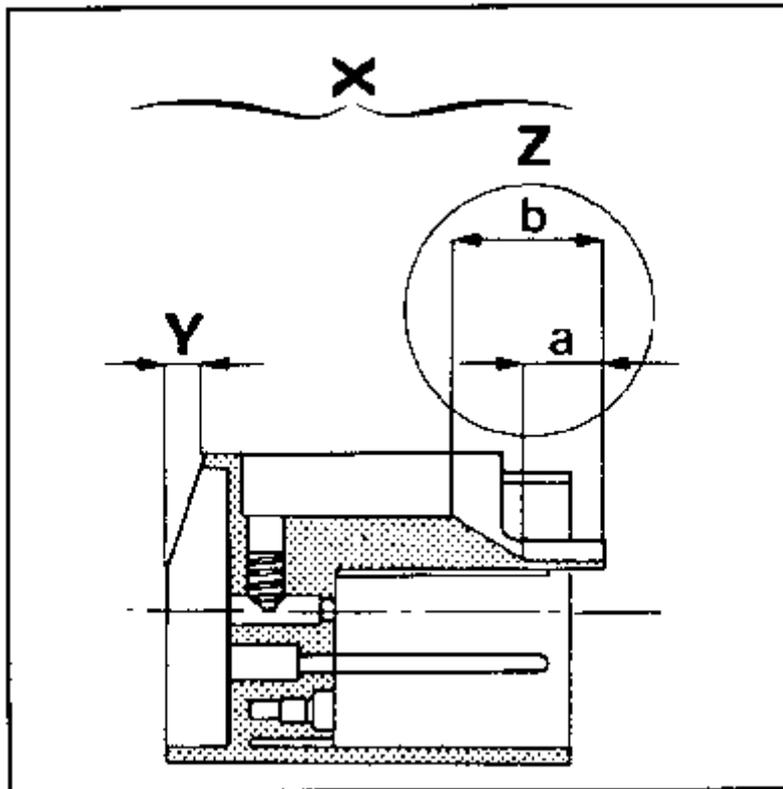


# "What do the slide numbers mean?"

Dell'Orto PHF/PHM series carburetor slides are a little more complex than most other slide-throttle carburetor slides because they contain the accelerator pump delivery ramps as well as the cutaway to effect mixture transition from idle to needle jet.

This is a diagram of a Dell'Orto PHF/M slide seen in cutaway from the side. In installation, the float bowl would be on the left, the top of the carburetor on the right.



In the illustration, "X" designates a particular slide. I've most normally seen this defined using the notation "Y/Z" where Y is the cutaway in millimeters \* 10 (e.g.: 60 means a 6.0mm cutaway) and Z is the pump ramp type. A typical slide for a bike like my LeMans 1000 equipped with PHM40 carbs would be a "50/3": cutaway is 5.0mm and the pump ramp type is #3.

To decode the pump ramp types, you need a chart:

Z	a	b
1	10	20
2	13	23
3	2	30
4	13	26
5	2	20

To understand what these values mean, look at the slide diagram above. As the throttle is opened, the slide moves up in the carburetor, towards the right in the diagram. The accelerator pump actuating lever is fixed in position ... when the throttle is completely closed, the bottom of the lever is at the top of the ramp (closest to the right) and as the throttle is opened, the contact point travels down the ramp (to the left). The distance "a" determines when the lever begins to actuate the accelerator pump, distance "b" determines when the accelerator pump lever travel has stopped.

So when you look at a slide with a pump ramp of #3, you can see that this is a slide which nets an early start to the accelerator pump action with a slow ramp to when the pump lever action is effectively over .. it begins to pump at 2mm of throttle opening and stops 30mm later. By comparison, ramp type #1 is more of a midrange shot - starting at 10mm of opening with a steep ramp to maximum at 20mm, it only delivers a quick shot of fuel in the middle of the throttle range on a 40mm carb.

There are several other factors in understanding accelerator pump action which I'll touch on only briefly.

- Dell'Orto accelerator pumps have an adjustable delivery screw which is usually set at the factory, cited to deliver some specified total volume with a reference nozzle in place. Normally this value is arrived at as being so many cc of fuel per 10 or 20 strokes of the carburetor slide. I don't have a figure for this value handy. Normally, you would never change the volume adjustment on a Dell'Orto carburetor.
- The size of the fitted pump nozzle affects how long it takes for the spring-loaded rubber pump diaphragm to produce its squirt. It starts when the actuating lever hits the beginning of the ramp, but continues for some time T past the point where the ramp has topped out.
- How quickly the slide is moved will determine what sort of timing the pump achieves.

It's pretty common for tuners to become frustrated with jetting Dell'Ortos due to the limited number of ramp types available and the interactions of the accelerator pump on other mixture circuits. I find this a problem primarily at the idle to needle jet transition time, so a long ramp type like a #3 presents the greatest difficulties in this regard. Remember that under steady state throttle openings, the accelerator pump adds little to nothing to the mixture. It's easy to block off the accelerator pump entirely or remove the actuating lever, which reduces the jetting exercise to the traditional slide-throttle carburetor effort.

I find that when properly jetted, the accelerator pumps add a small amount of responsiveness in fast throttle transitions at the expense of a bit of gas mileage. I believe that was Dell'Orto's goal in the design, so I think they've succeeded.