Organ Stops: How They Work and What They Do

In Greek and Roman times and through most of the 15th century, it mattered not how many *ranks* (rows) of pipes were sitting on top of the wind chest. All the pipes corresponding to the key being depressed played every rank of pipes. Talk about making a lot of noise! Eventually, devices were invented that enabled the organist to *stop* different ranks of pipes from speaking. Not surprising, the name of this device became known as a *stop*.

To-day, organ stops are found in a variety of shapes, styles, and sizes: *draw knobs*, *pull bars*, *stop tabs*, and *tilting tabs*. Organ stops are also known as *registers*.

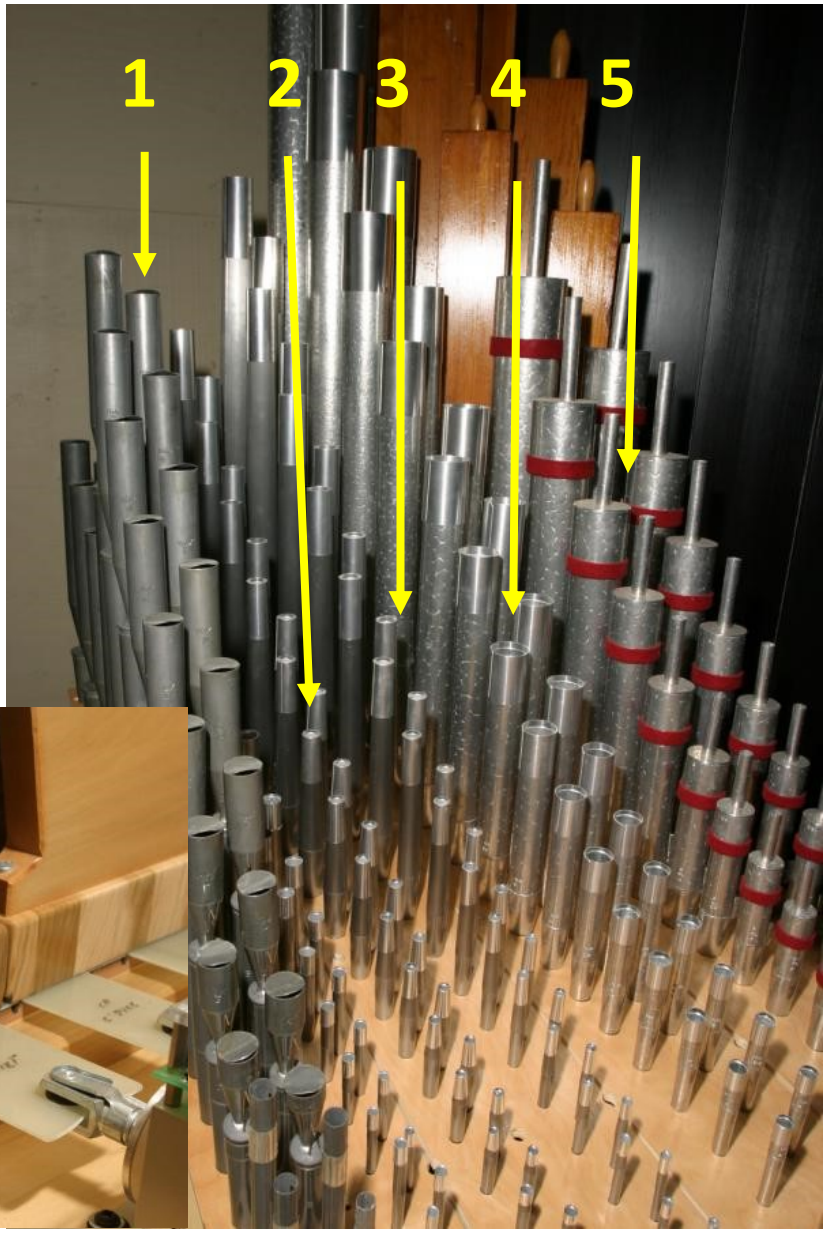
Stops are either drawn, pulled, or pushed to unstop a rank of pipes. Trained organists know not to use all the stops at one time – an improper use of the organ. Trained organists know which stops go with other stops to make historically acceptable, good, and balanced organ registrations.

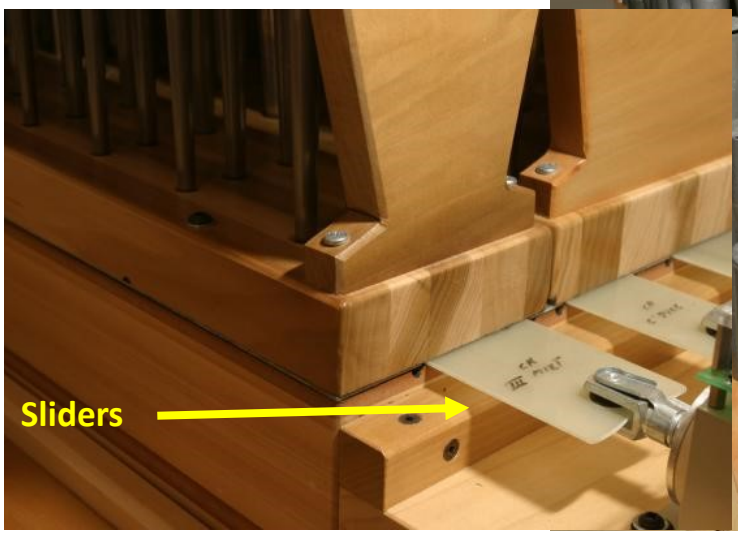
Here's how a stop controls which rank of pipes may speak...

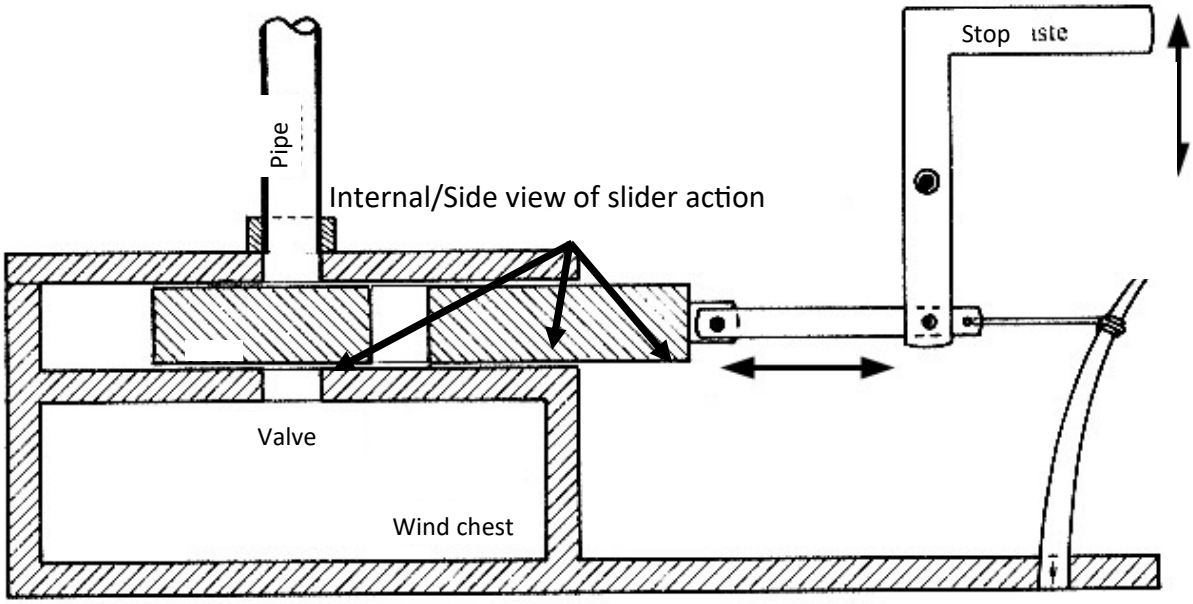
In the image on the right, there are five ranks of pipes lined up next to one another, sitting on top of a wind chest.

When a stop is activated, sliders under the pipes *stop* airflow into the pipe until the stop is deactivated. When the stop is pulled out, the sliders move ever so slightly to line up holes in the slider with holes under the pipes.

(See images below)







END

More about stops

Speaking Stops

Not all stops on an organ console are *speaking* stops. A *speaking stop* is one which prepares a rank of pipes to speak or a percussive or digital sound to be heard. In other words, if a stop is deactivated, and a sound can be produced in its respective division, it is a *speaking stop*. Experiment with this at the Cardinal Newman organ console.

Non-Speaking Stops

There are four basic *non-speaking stops*:

- Couplers
- Unison Off
- Tremulant
- Prepared For (Blank)

Inter-manual couplers

Couplers

InTER-manual couplers connect one division to another. Inter-manual couplers connect manuals to manuals at the 16', 8' (Unison), and 4' pitches. NOTE: manuals are never coupled to the Pedal division at 16' pitch. Can you reason why this is the case?

16' couplers are also called *sub couplers.*
4' couplers are also called *super octave couplers.*

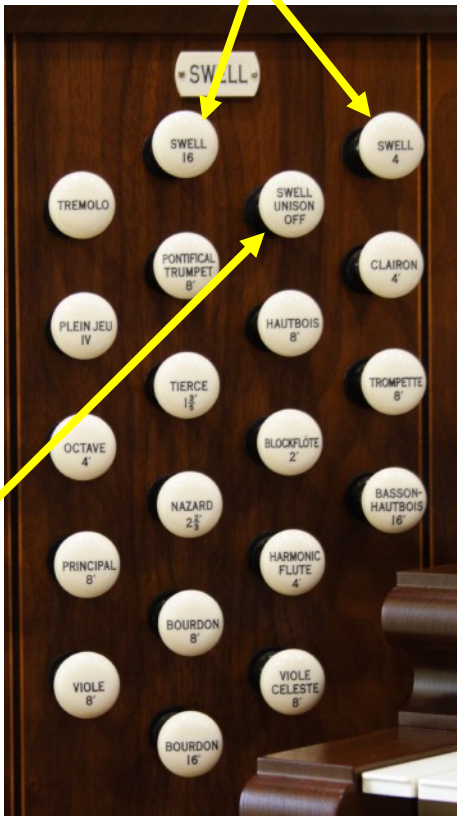
In-TRA manual couplers couple speaking stops inside their respective divisions at 16' or 4' pitches (see picture, right).

Unison Off

The *Unison Off stop* shuts down the unison (8') pitch in its respective division. It is a useful tool for trained, more experienced organists.

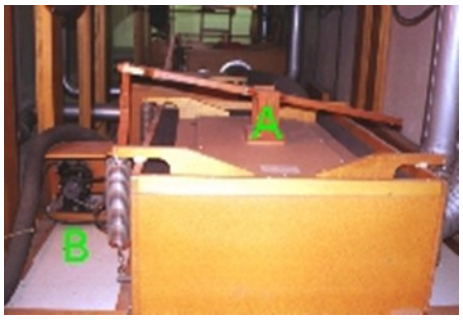
Intra-manual couplers

Unison Off



Tremulant Stop

Like the human voice, the pipe organ can “sing” in a straight tone or with vibrato. The tremulant stop (from Latin: tremulus, "trembling"; French, *tremblant*; Italian, *tremolo*; Spanish, *temblor*) activates a device which causes the wind supply to fluctuate, producing a tremolo or vibrato effect. A speaking stop must be drawn before a tremolo effect can be obtained. There are several ways in which the mechanics of a tremolo operate.



The most common tremulant device can be seen in the photograph on the left. A movable panel sits on top of an air reservoir. Attached to the movable panel is a wooden bar **(GREEN A)**. When a motor (**GREEN B**) is turned on by the Tremulant stop, the bar moves up and down, disturbing the steady wind pressure inside the reservoir. While singing a straight tone, take both hands and gently press in and out of your stomach. TREMOLO!

In the case of the Austin Universal Air Chest System™, a tremulant is made by placing a large wooden fan above the pipes (right). An electric motor turns the fan, forcing an unsteady current of wind against the upper end of the pipes. This disturbance in the air flow above the pipes results in a wavering sound. You might have experienced this while singing under a ceiling fan.

Prepared For Stops (Blank)

You might encounter an organ console with stops that have nothing written on them like the one found on the organ at Cardinal Newman. Or, you might encounter stops labeled *Prepared For, PF, or Prepared*. These stops represent pipe ranks awaiting future installation, or not!

Borrowed Stops

It is not uncommon for an organ builder to borrow an independent speaking voice from one division and make it available in other divisions, causing the stop to be duplicated. This is called a *borrowed stop*. The use of too many borrowed stops is not a good thing. Borrowed stops may add to the number of stops on the console which might look impressive, but it means that the number of independent tonal resources available to the organist is more limited than it appears. Borrowed stops may be counted in the number of *speaking stops* an organ has, but must NOT be counted as an independent pipe rank. Reason with your instructor why this is so. Find the borrowed stops on the Cardinal Newman Chapel Allen organ.