

Pulling Out All the Stops (Responsibly)

A friendly guide to organ registration

By Aram Basmadjian

The organ is the only instrument that arrives with its own instrument panel. Settle onto the bench of a fine three-manual console and you are met by keyboards stacked like an apartment building, a battalion of drawknobs and rockertabs that look ready to launch something, piston buttons tucked beneath the keys, and more pedals than two feet can reasonably account for. A parishioner once asked me which knob turned on the air conditioning. I had to tell him there isn't one, but there are about sixty that turn on sound, and your job as organist is deciding which ones, and when.

That decision is called registration, and here is the good news: it is not as hard as the console makes it look. Registration is closer to cooking than to rocket science. A few basic ingredients, a handful of classic recipes, and the confidence to taste as you go. This guide is written with Allen Organ owners in mind, but everything in it applies to any fine pipe or digital instrument. A Diapason is a Diapason whether its voice comes from a pipe or a circuit.

The four families of tone

Nearly every stop on a church organ belongs to one of four families, and once you can hear them, an intimidating stop list starts to read like a menu you can actually understand. There is a quick trick for this. Play a single note on one stop from each family and listen for the vowel.

Principals, also called diapasons, say “ahh.” This is the foundation sound of the organ itself, a tone that exists nowhere else in music. Principal, Diapason, Montre, Octave, Fifteenth: these are the foundation stops that the whole instrument is built on. If you learn only one stop, learn the 8' Diapason on the Great manual.

Flutes say “ooh.” Warmer and rounder than principals, they imitate the flute family and have names like Bourdon, Gedeckt, Rohrflöte, and Nachthorn. They soften edges and lend warmth to the overall ensemble.

Strings say “eee.” Slender, keen, and rich in overtones, they carry names like Salicional, Gamba, and Viole. String pipes are similar in design to principal pipes except that they are much narrower in diameter which lacks the strong fundamental and round body that you hear in a diapason. String stops often have a companion stop called a celeste - a second rank tuned a hair sharp or flat so that, drawn together, the two shimmer with a slow, gentle undulation.

Reeds produce sounds like those of a concert band. Chorus reeds such as the Trompette, Bombarde, and Clarion emulate the brass section by adding fire and power to the principal chorus, while solo reeds such as the Oboe, Clarinet, Krummhorn, and French Horn are distinctive colors meant to carry a melody on their own.

That vowel trick - ahh, ooh, and eee will carry you further than any list of names, because the names change from organ to organ while the vowels stay put. It is a habit worth stealing from concert organists, who know a stop the way you know a friend's voice on the phone.

What the numbers mean

Most stops carry a number - 16', 8', 4', 2' - and it tells you the speaking length of the pipe that sounds when you play low C on that rank. The piano is your reference point: an 8' stop sounds at normal piano pitch, a 4' an octave higher, a 2' two octaves higher, and a 16' an octave lower than normal piano pitch. The pedal's 16' stops supply the low end you feel as much as hear, the way the cellos and double bass anchor an orchestra.

Then come the stops that end in fractions: 2-2/3', 1-3/5', 1-1/3'. These are called mutations, and they sound at a fifth or a third rather than at an octave. They are never meant to be heard alone; they exist to reinforce the overtones of other stops and build new colors.

What the Roman numerals mean

A mixture is a stop that sounds several pipes at once for every key that you press. Instead of a single rank, a mixture has three, four, or more ranks and the Roman numeral on the stop tells you how many: A Mixture IV plays four pipes per note. You'll also see mixtures under other names: Fourniture IV, Plein Jeu IV, Scharf III, Cymbale III. These stops add the brilliance that makes a chorus sparkle. Two rules will save you a great deal of grief: never play a mixture by itself and never add one without enough foundation underneath it. The mixture is the crown on a stack of principals (8', 4', 2'), and together they form the classic plenum, the bright, full sound of Bach's preludes and fugues.

Registering hymns: the daily work

For most of us the organ's real job happens on Sunday morning, and here is the single most important idea in this article: when the congregation sings, the organ does not accompany it. The organ leads the congregation. Every registration choice serves one goal: giving people a clear pitch, a confident pulse, and enough sound to lean on without being buried under it.

The recipe begins with two stops: the 8' and the 4' principal. The 8' gives body, but here is the subtle part. A congregation sings at 8' pitch, so if you play only 8' stops, the singers' own voices cover yours and they can no longer tell where the pitch is. The 4' stop is the hero of congregational singing: it sits just above the voices and pins the pitch down. Try it for yourself. Play a verse on the 8' Diapason alone — noble, but a little vague. Add the 4' and the tune suddenly snaps into focus.

Start with where your hands and feet belong. In most hymns, both hands play on the Great: the right hand takes the soprano and alto, the left hand takes the tenor, and the pedal takes the bass line. The four parts of the hymnal map neatly onto the organ and keeping them together on one manual gives the congregation a single, unified sound to follow. Now and then you may move the right hand to another manual to solo out the melody, perhaps on a larger reed stop to bring the tune forward on a final verse, but treat that as a special effect rather than the everyday plan.

Then the pedal. The rule of thumb is to register the pedal an octave below the manuals: with 8' and 4' stops in the hands, use 16' and 8' stops in the feet. As a working minimum, that is your hymn registration - 8' and 4' in the manuals, 16' and 8' in the pedal.

From there, build the way you would build a stone pyramid: wide at the bottom, narrow at the top. For clarity, add only one stop at each pitch; for fullness, add more stops at the low pitches before

reaching higher. Couple the other divisions to the Great and let it do the heavy lifting. Add flutes for warmth, the softest 2' you can find for definition. For a big, festive hymn, a reed or a mixture can be added to cap the chorus. Reeds add energy; mixtures add brilliance. Which one to reach for first depends on the organ, so try both and trust your ears.

And here is what to leave out. The organ's most beautiful sounds are often its worst collaborators:

- **Celestes.** They are beautiful precisely because they are slightly and deliberately out of tune. But that beating shimmer is the last thing a congregation needs while hunting for the pitch. Save them for the quiet prelude.
- **Tremulants.** Same problem. A wavering pitch is hard to sing against, so keep the tremulant off for hymns no matter how much it flatters the flute.
- **Heavy 16' manual stops, sub-couplers, and thick 8' stops.** They muddy the texture and drag the tempo, like singing with a heavy blanket over your head.
- **Full organ all the time.** If every verse is loud, no verse is. The quiet verse is what makes the loud one land.

For a meditative hymn, swap flutes for principals at the 4' and 2' level to take the edge off while keeping the pitch clear. And remember that closing the swell box is not a substitute for registration. A wrong registration simply becomes a quieter wrong registration when the swell box is closed.

Making changes in rhythm

However you change registrations — by hand or by piston — treat every change like a note in the music. That means three habits. 1. Mark the change in your score on the exact beat where it happens. 2. Practice it there until it is automatic. 3. Never change registration in the middle of a phrase. Registration changes live between phrases, at the ends of verses, or between a verse and its refrain. A congregation may not count beats, but it knows when the floor shifts beneath it.

The console gives you help. Thumb pistons beneath the manuals recall whole registrations in an instant: general pistons change the entire organ, while divisional pistons change one division at a time. The crescendo pedal is a registration device, not an expression device - it adds stops progressively as it opens, so its normal position is fully closed, and you use it for builds rather than for shaping a phrase. The expression shoes are the opposite: they open and close the swell shutters, so their normal position for hymn playing is fully open.

If you must change stops by hand mid-hymn, redistribute the parts first: the right hand takes the melody, the left hand works the drawknobs, and the pedal carries the bass. With a little practice it feels less like juggling and more like conducting.

Beyond the hymn: solo colors

Once the principal chorus is second nature, the rest of the organ opens up — and this is where registration becomes genuinely fun. The basic recipe for a solo has three layers: a solo color on one manual for the melody, a softer accompaniment on another, and the softest 16' flute in the pedal as a cushion underneath.

The classic solo color is the cornet, a combination of flutes at 8', 4', 2-2/3', 2', and 1-3/5'. It produces a warm, faintly reedy sound that is at its most sumptuous in the soprano and tenor range. Solo reeds — Oboe, Clarinet, Krummhorn, Cor Anglais — each bring a different personality, and an Oboe with a 4' open flute beneath it sounds remarkably like the real instrument. Strings and celestes make the softest of all accompaniments.

A tremulant doubles your palette, since every solo color can be used with or without one. The best tremulants are vocal rather than theatrical — neither too fast nor too deep. A lovely trick is to bring the tremulant in on a long held note: set the same solo stop on two neighboring pistons, one with tremulant and one without, and press the second as the note sustains. And the swell box is your bow arm, as any orchestral player would understand. Most of the sound arrives early. More than half the volume comes in the first quarter of the pedal's travel, so plant your whole foot on the shoe and keep a little in reserve for that final note. And on an Allen console with the GeniSys display, you can watch your crescendo and expression levels move as you play.

Playing the room

Register for the person in the pew, not the person on the bench. A division at the back of the church is far louder to the people sitting beside it than it is to you, and a sound that seems to scream in your face may be barely audible in the nave. Before coupling divisions together, listen to whether they are actually in tune with one another — divisions placed higher in the building run warmer and sharper, especially in summer. A little less sound, in tune, always beats a big sound that fights itself.

The last word

Bach is supposed to have said that playing the organ is no great feat: "All one has to do is hit the right keys at the right time, and the instrument plays itself." He was being generous and he left out the half of the job we have been discussing. The real art is hitting the right *stops* at the right time, so the instrument says what the music needs it to say.

That art is learned entirely by ear, one stop at a time. Spend time alone with your instrument. Play each stop by itself across the whole keyboard. Try one new combination every week. And when you finally pull out a full, roaring chorus and the room swells up beneath you, allow yourself a small smile. You have earned it.

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