

The purpose of this document is to assist in comprehending the use of terminology one will encounter in discussions of various aspects of the autoharp and playing one.

The language is intertwined, so words that are in italics are defined in their own right elsewhere, as needed, all in alphabetical order.

This document does not attempt to define all the elements of music theory that are well enough supported by numerous other references, something like Music Theory for Dummies, intended to simplify comprehension but useful to all levels of musicians. The document does address those terms essential to a basic discussion of autoharps and in the context of playing the autoharp in its various forms. Enough theory is included to hopefully provide an adequate understanding of the autoharp's chords and scales.

The scope does not include descriptions of various model names except autoharp variants such as the Guitaro, Mountain Harp, or wide-body Orthey/Schreiber, which are variations in the construction of the instrument body and of some regard and significant interest. Most model variations on a model B body are well enough described in Becky Blackley's The Autoharp Book. Some like the imported Wildwood Flower model occurred later than the period covered by the book, yet the model is only superficially different and pretty much a failure in its original form, having an unsupported string and bar set and a string schedule that no one today would suggest. The body is pretty, but the instrument setup needs to be completely rebuilt to be a good player. Improving the Wildwood Flower would be a good topic for its own article. Other imported model variations, child models, et al are just not unique or serviceable enough to be noteworthy. They are not supported by Oscar Schmidt. This is not an update of Becky's book, nor is it an eBay's handbook, but a reference like that would be a good project for someone.

There is no effort to cover all of the configuration variants that could not be succinctly described, worthy of their own document, some already published and accessible elsewhere. For example, an autoharp that requires pressing two buttons to form a chord. A compendium of autoharp variants would be a good project for someone more into all that. Here we are trying to get interested autoharp people equipped with a ready reference for common lingo among the autoharp crowd, although with some limitation in scope. Hopefully the reader will feel included rather than snowed, while being resourceful in searching out explanations of other terminology.

AOM – a reference to The Autoharp Owner's Manual edited by Mary Lou Orthey, Mel Bay publisher.

This is intended to be a living document, subject to periodic updates. Requests and suggestions are welcome.

Term

- Acoustic
Acoustic is as opposed to electric, unamplified
- Action
Action is the distance and ease with which a chord bar must be pushed down for the felt to contact the strings and *damp* effectively.
- Allen wrench
An Allen wrench is used as a *fine tuner* tool (pic). The adjustment cap screw heads require this type of wrench.
- Alligator clip
An alligator clip is an office product that can serve to hold a string on a *model A style end pin* long enough to secure the other end and remove all the slack that would otherwise allow the string to come off the pin. (pic)
- Anchor bar
An anchor bar is the slotted aluminum bar that is set into the *Model B* autoharp body on the end where the strings attach (anchor) and which is opposite the end with the *tuning pins*. Instruments with *fine tuners* instead do not include this part. This feature is unique to the model B instrument.
- Anchor end
The anchor end of an autoharp is the base where the strings attach, and which is opposite the end with the tuning pins.
- Anchor pocket
Anchor pocket refers to the area routed out of the anchor end of the top and in which the anchor bar or fine tuner base is mounted. This feature is unique to the model B instrument.
- Appalachian style
Appalachian style is one of various ways to refer to holding the autoharp upright against the body when playing. One might encounter “burp the baby” as the upright position, but that implies an excessive cross body attitude while instead having the instrument as straight up as possible can be an advantage in a couple of ways. “Appalachian” may be a reference to the fact that the first model in the Oscar Schmidt regular line to feature 21 chords was the 1975 Appalachian model, clearly intended to be played held upright, leaving no room to pick along the anchor end. This way of playing is also associated with Mother Maybelle Carter needing to stand up to a microphone while playing the autoharp. Mike Seeger and Cecil Null were also prominent pioneers in playing this way to perform.
- Ball end
Ball end refers to an autoharp string that includes a *grommet* on the *anchor end*. These grommets can be one of three sizes, most notably the inner diameter of the opening. The *Model A* string anchor end, now *loop* only, used to have a ball end with an inner diameter large enough to fit over the copper clad *dead pins* that were in two rows on the *anchor end* of the instrument. The Model A Reissue is really of *Chromaharp* construction and was delivered with Chromaharp strings. The *Model B* ball is intended to catch on the underside of the aluminum *anchor bar* slots and has an inner diameter smaller than that of the old Model A balls. If the model A and B balls were different outer diameters, it is hard to tell. They both work on the model B or fine tuners. The fine tuner design was adapted to the outer diameter of the model B and original Model A ball.
- Ball knot
Ball knot refers to the wire wrapped around the *grommet* (ball) end of a string and which secures it sufficiently to hold under *tension*. Strings typically require trimming the *tail* of the knot before installation. That knot will draw down and tighten once under full *tension*, becoming a source of tuning instability in a newly installed string. Once very tight, the tuning will hold very well. It is not the string that is stretching so much but rather that the ball knot is drawing down.

- Bass
Bass or “low bass” is an abbreviated way of referring to the largest *wound strings* that do not approximate a *scale*. It should be useful to think of these as 1F-5E in a standard *string schedule*.
- Bass strings
Bass strings refers to the group of *wound strings* in the section of the strings that are the longest in length and lowest in pitch. *Octaves* in this area are not complete *chromatic scales*.
- Beat rate
Beat rate is not really the same concept as in rhythm, but rather refers to the pulsing sound or visceral sensation one can learn to notice when sounding two strings close in *pitch* or *harmonic* relationship, e.g. an octave, a fourth, or a fifth *interval* or a *double string* note on an autoharp. One might listen and adjust either to achieve a certain beat rate or to eliminate it altogether.
- Becket hole
Becket hole refers to the hole in a *tuning pin*.
- Bell line
Bell line is the approximate line formed by *harmonic nodes* across the string set. The line is not exact, because the strings are not the same length, with whole numbered fractions occurring at the same coordinates. This is clearly illustrated in the Autoharp Owner’s Manual discussion of harmonics.
- Bells
Bells is another common term for harmonics, the chiming one gets when felt touches a string at a harmonic *node*, for example $1/3$ of the *vibrating length*. These tones are discordant since they typically are notes not in the *chord* being used. Chord placement is best when accounting for where these unwanted sounds occur.
- Boom-chuck
Boom-chuck is an expression that characterizes the way of playing in which there is a *pinch* lick followed immediately by a *thumb* stroke across *the bass* for rhythm, occurring across two beats (of rhythm). Those coming to the autoharp from the guitar would likely find this technique very natural.
- Brace
Normally braces are strut pieces that add support to a panel section of the instrument without adding thickness to the entire board. These are placed across the grain and serve to maintain shape and to prevent cracks along the length of the grain. A minimum is used in order to preserve tone and volume.
- Break length
Break length is the length at which a wire at a given pitch will break. The size of the wire is not a factor and does not increase the strength of the wire. Size, i.e. diameter, only affects *tension* required to achieve the pitch and *feel* to allow plucking. Wire size is regulated for the strength of the structure holding the strings with minor adjustments to achieve a favorable *timbre*. Break length can be calculated and is used by builders to determine the optimal *scaling* for the string set. When designed to be a percentage less than maximum, there then is allowance for further stressing the wire when plucking it. There are other momentary friction factors at bridges that also require some moderation away from maximum stress in tuning alone. Our best illustration is popping a high C string when we try to tune it up to D. Although a slightly finer wire size is proven to help, that only addresses friction at the pins. What happens is that the high D pitch is too close to break length when the vibrating length was designed to be C6. Going up only a half step to C# though has worked fine (and with a standard 36C string).

- **Bridge**
Bridge refers to the supports for the string bed. That form can be vertical *bridge pins* (or guide pins) or it can be a wooden platform with a steel or bronze rod resting in a bead cut in the platform. This is commonly referred to as “A-style or B-style bridge”. A “bridge” in some form to support the strings and create *coupling* with the instrument body will occur at both ends of the *vibrating length*. The slotted aluminum *anchor bar* or *fine tuners* on the *model B* include the anchor end *bridge* in the design.
- **Bridge pins**
Bridge pins or guide pins are those vertical, notched pins that stand in front of the *tuning pins* and which guide and support the strings. This feature is unique to the *model B* instrument and takes the place of a conventional *bridge* as would be seen on an older *Model A* or on a typical *luthier* design.
- **Bryan Bowers (BBB) layout**
A *chord bar* arrangement attributed to Bryan Bowers (middle name Benson). It is neither *diatonic* nor *chromatic* necessarily but involves a very specific *chord button* fingering pattern and the positioning of the chords in the set. The layout trademark is three rows of buttons, major chords in the middle row, 7th chords in the *treble* side row, minor chords in the bass side row: with the I⁷ above the I and the relative minor vi below the I. For example, in C; I is C, I⁷ is C⁷, V⁷ is G⁷, and vi is Am. The intent is to take advantage of where fingers would naturally fall without moving the hand. The V⁷ then falls right under the ring finger, the I under the middle finger, and the V under the index finger. One can stay in close contact with the Home position, either major or minor, not having to reach around for basic *chord progressions*. The advantage presupposes some simplicity in the music. Frequent use of a wide array of chords for *chromatic* music could cause finding advantage in a different arrangement of chord bars.
- **Button row**
Button row refers to the row formed across the set of *chord bar buttons*, viewed from *tuning pin* end to anchor. There are typically either two or three rows of buttons, while historically there was a single row set.
- **Button tab**
Button tab refers to the Oscar Schmidt *Model C* button portion that rides in the channel of the *model C chord bar*. To make these buttons, a top button section is molded and then mated with a molded, flat piece, the tab. *Button wing* is another term for button tab.
- **Button tier**
Button tier is the diagonally vertical arrangement of three buttons formed on a chord set that has three rows running in the other direction. This is not necessarily the 21-chord set but that would be typical, while some have as few as 6-7 buttons.
- **Button wings**
Button wings is another reference to *button tabs* that ride in the aluminum channels of the *model C* chord bar sets.
- **Cadence**
Cadence in musical composition refers to various forms of ending to a musical phrase, most basically returning to the scale’s root chord, whether major or minor. A *progression* of V⁷ to I, e.g. G⁷ to C, to end a phrase is a cadence example. A phrase would not necessarily end on the *tonic* (C) in some forms of cadence. Cadence may also be thought of as the resolution of *dissonance* to *consonance*. A *dominant* 7th chord contains a *diminished* triad, which suggests resolution in either the following *tonic* or subdominant major chord (either I or IV).
- **Calipers**
Calipers are a tool of adjustable span to measure a dimension of a small object, in our case a string diameter. Measurement is usually to one thousandths of an inch (.001). Distinct from the micrometer, calipers can measure inner as well as outer diameters or lengths. *Insert picture*

- **Cam**
Cam refers to a component of a *fine tuner* design such as that used by Oscar Schmidt or one similar in principle. Each string is threaded through the hole in its own cam, which is then secured to its threaded hole in the fine tuner base bar. The cam rests on the crown of the base bar, and when the screw is turned, the cam rocks forward or backward to change the *tension* on the strings. The cam moves on an axis so that when precisely machined moves the string forward or backward without changing the height. The cam has a rounded top surface on which the string rests, allowing a camming action and thus the name cam. A cam transforms rotary motion into linear motion.
- **Cam seat**
Cam seat refers to the bottom of a *fine tuner* cam's mating with the crown of the fine tuner base. If this relationship is off even slightly, the fine tuner will not operate properly. Misalignment can be caused by holes in the cam being out of position or from threaded holes in the base being too far forward or backward. All the dimensions must be coordinated. A workaround is to elongate the screw shaft (long hole) in the cam so that the cam can slide back into position and seat itself. The seating is determined by the shape of the cam's underside, a small V-shape that rests on the crown of the base bar. When cams are not fully seated, sometimes due to interference from the string's ball end or knot tail, the string bed cannot be as level as a continuous bridge would allow. Not enough attention has been given to these fine tuner assemblies as production got passed around, so they have never functioned completely satisfactorily. Other designs, precisely made, have been devised for use by *luthiers*.
- **Cap screws**
Cap screws are the type used on *fine tuners* and which have a socket head that accepts an Allen wrench. The screws may be 3/32" US or mostly M3 metric. Oscar Schmidt screws are 20 mm long, but early ones were 25 mm and would bottom out too easily.
- **Cap strip**
Cap strip refers to the plastic piece that attaches with tiny screws over the top side of a 12- or 15-bar holder, compressing the springs and retaining the bars. Handmade designs might include something similar in wood, perhaps metal.
- **Cents**
Cents is a division of an *octave* and a measure of being in tune...what some tuners display + or – from an in-tune reading. There may be a meter scale graduated in 10 cent marks, sometimes fewer when closer than 10 cents to zero. A *chromatic* half step is 100 *cents*. An octave is 1200.
- **Chimes**
Chimes is an informal term used to refer to the sounds emitted when strings are plucked when the felt is touching on or near a *harmonic node*. Chimes and "harmonics" are used interchangeably. See Harmonics.
- **Chord**
A chord is three or more notes forming a *harmony*. The three basic notes are called a triad. Other notes, usually one, can be added to form variations. A triad can be major or minor, diminished or augmented, depending on the size of the third and fifth intervals (second and third notes in the triad). Naming of chords with 4 or more notes is another topic of its own, but an autoharp player will be very familiar with 7th chords, which add a 7 tone to a triad.
- **Chord bar cover**
The 21-bar *chromatic* chord set from Oscar Schmidt has a casing over the *chord bars* referred to as a cover. Historically it has holes for 12 or 15 in two rows, or 21 buttons in three rows, all known as *Model C* bar sets because of the type of aluminum bars underneath.

- **Chord bar holder**
Chord bar holder is a part that retains and guides the ends of *chord bars*. It can be in the form of a 21-bar “comb” or a fixture on each end of an “open” bar set like the 15-chord, any Chromaharp including 21-bars, or handmade bar sets with various bar counts.
- **Chord bars**
Chord bars are the set of sticks that lie across the strings and which include buttons and *felted* bottoms to control the string *damping* to form each *chord*. The bars rest on *springs* to allow the bars to retract once depressed and released. The end of a bar is retained vertically by a *cap strip* or cover and lengthwise by a holder fixture or a comb pin running through a hole in the end of the bar, usually *treble end*. Alignment of the bars is accomplished by a comb (set of vertical pins) or by cells formed inside a holder fixture.
- **Chord layout**
Chord layout refers to the pattern and its logic chosen for distributing the chord buttons and underlying bars across the autoharp chord set.
- **Chord progression**
Chord progression refers to the sequence of chords to be played.
- **Chromaharp**
Chromaharp is the primary brand name for another form of the chorded zither. The manufacturer produced the same or similar instruments under a number of logos. As of this date these are no longer in production as Chromaharp but may be carrying other brands’ logos. Samick is usually the reference to the master brand. These are or were uniquely marketed worldwide, since Oscar Schmidt does not export.
- **Chromatic**
Chromatic refers to the standard autoharp’s 12-tone musical scale, e.g. 12C through the 23B above, and is often used to mean as opposed to diatonic, which is either strictly 7 tone, or loosely applied to something else less than 12. Chromatic music draws freely from that 12-tone scale, while many other compositions do not depart far from the basic 7-tone, do-re-mi scale. Folk and string band music is a mix of diatonic and chromatic tunes but is usually relatively simple merely to be sociable among players of varying knowledge and skills or with varying instrument capabilities.
- **Circle of fifths**
Circle of fifths deserves extensive explanation but in simplest form refers to 12 *key signatures* being related by shared fifth interval notes and then linked in sequence, so that if arranged in a circle, the last link comes back to the starting note. This circle “closes” when the *temperament* scheme used and affecting the width of the fifth intervals allows the ends of the circle to meet, neither falling short nor overshooting. The sequence of fifths is C-G-D-A-E-B-F#-C#-G#-D#-A#-F going around a circle until F and C meet. See fifth, interval, key, temperament. Insert illustration.
- **Comb**
A comb is in reference to the type of whitish plastic chord bar holder used on the Oscar Schmidt 21-chord assembly. There could be fewer bar positions (pins) on other adaptations. There is a flat base and then vertical pins set at 9/32” centers apart to match bars that are ¼” wide.

- **Comma**
Comma refers to the amount in *cents* by which the *circle of fifths* fails to close (syntonic 21.51 cents) or by which it extends beyond closure (Pythagorean 23.46 cents). Syntonic occurs in *meantone* temperament (1/4 comma), in which pure *major thirds* (386 cents) are preserved at the expense of fifth intervals (narrowed to 696.5 cents). Pythagorean occurs when all fifths are pure (702 cents), leaving harmony pretty much unavailable. *Temperament* schemes enabling *harmony* are often based on “splitting” and distributing one of these comma amounts. The common Equal Temperament or “standard” is actually 1/12 Pythagorean comma meantone or could be called 1/11 Syntonic. All its fifth intervals are 700 cents, slightly flat, and all *major thirds* are 400 cents, quite wide (sharp) or “edgy”. *Minor thirds* are very narrow (flat) and unsatisfying. Comma then comes into play in devising more satisfying tunings, at least for solo playing.
- **Concordant**
Concordant, or in agreement with, refers mainly to tuning octaves to sound in exact agreement and accounting for *stretch* in the *partial harmonics*. There may be a *beating* heard when both strings are played together. Concordance would be achieved when the beating was tuned out. Concordant can also refer to *doubled strings* on a *diatonic* that are tuned *in phase*, i.e. exactly alike. Concordant is the opposite of *discordant*.
- **Conversion**
Conversion will be mentioned in reference to a change in the *key signatures* and scales supported by an instrument and typically involving string and tuning changes along with the necessary *felting* changes or number of bars or type of *chord bar* assembly. A *conversion* to *diatonic* would usually include addition of *fine tuners* for precise synchronizing of neighboring strings playing the same pitch (doubled).
- **Configuration**
Configuration refers to the setting up of an instrument in any number of key and chord combinations...instrument body and *chord bar assembly*...together or separately. “Standard factory” is a configuration meaning as delivered or made to a standard set by the precedent of factory-built autoharps, typically *chromatic* per the 1890s Zimmermann model 73 yet with various *chord bar* options.
- **Consonance**
Consonance is as opposed to *dissonance* and refers to sounds being musical, pleasing, in balance.
- **Contest**
Contest as a term will be encountered in reference to competitions. Many instruments, including the autoharp, have contests which award championships and often instruments as awards. These are strictly instrumental and solo performances and usually judged without being able to watch the performer or be aware of their identity. It would not be how well one sings or performs or is otherwise popular, and thus some occasional cynicism about who contests represent or do not.
- **Coupling**
Coupling is a technical term referring to the efficiency with which components of an instrument transfer sound (string energy). A useful autoharp example is *bridge* design and placement intended to produce the greatest volume possible or to preserve some sustain or ring to the sound of each string. Coupling can be “loose” or “close”. See impedance.
- **Covered-bar chord set**
Chord bars either lie under a cover of sorts, with buttons protruding from holes, or they are exposed with fixed buttons and held on the ends by *chord bar holders*.
- **Damping**
Damping means to stifle, in our case felt contacting a string and preventing it from sounding.

- **Damping ratio**
Damping ratio refers to how many strings sound across a *chord bar* versus the total number of strings. A low ratio allows more of a scratch or washboard impression, while a high ratio means a richer, more musical impression, given some judgments about *voicing chords* in the bass. *String schedules* need to be evaluated for how well they balance the damping ratios across the chord set. Experience has shown that a *3-key* autoharp, and certainly *2-key* and *single-key*, forms the threshold for when an autoharp gives a less scratchy impression than more fully chromatic, i.e. the composite sound is more the good parts dominating the unmusical parts.
- **Dead pin**
Some designs of autoharps have two rows of pins on the end of the frame that anchor the strings. These are known as dead pins, a term dating to the origin of the psaltery and any number of fixed-pitch instruments, most notably applied to the harpsichord and evolution of the piano. Dead pins are not present on the Oscar Schmidt *model B* or various designs which include *fine tuners*. More commonly on autoharps, dead pins are called *end pins*.
- **Diatonic**
Diatonic refers to a scale for a single key, 7 tones, do-re-mi-fa-sol-la-ti. It is often used informally to refer to an autoharp that may provide more than a single key scale but less than fully chromatic. Diatonic does not necessarily imply anything else...not tuning, nor number of chord bars, nor playing technique, nor fine tuners, nor two strings side-by-side tuned to the same pitch. These are common instrument traits, however.
- **Diminished**
Diminished is used in reference to a triad (chord) composed of two *minor third* intervals. Since the diminished 7th that includes yet another *minor third* is far more common in use, it is often called simply “diminished” by musicians not bothering with the 7th part. A diminished (not 7th) will occur naturally in a diatonic scale when built on the 7th tone, ti. For example in C, the B dim is spelled BDF. The 7th would always be chromatic, i.e. not possible in a diatonic scale. Then B dim7 would be BDFG#. Each note is separated by a *minor third* interval.
- **Discordant**
Discordant when intentional refers to a sound that creates unrest as a deliberate and fleeting device in a composition. It will demand *resolution* to a sound that is more pleasing, relaxed. Concordant is the opposite, for example doubled strings in good tuning with each other, but the term is not commonly encountered. Unintentionally discordant might refer to strings badly out of tune.
- **Dissonance**
Dissonance is a sound that is not musical, certainly not pleasing. The opposite is consonance. Dissonance occurs when two or more notes played together are near but not accurately on the same note, not necessarily in the same octave.
- **Do-re-mi**
Do-re-mi refers to the diatonic scale. See Diatonic.

- **Dominant 7th**
Dominant 7th refers to a V7 chord (five-seven), one built on the fifth tone of a *diatonic scale* using a *major third* and two *minor thirds*. But note that the term [dominant] correctly applies only when the 7th chord is built on the fifth tone of the scale. Dominant 7th is not a generic type of chord but is often used that way. A true dominant 7th is not a “flatted 7th” since it is diatonic, where a flatted note is not available. It is true though that the V7 sequence of intervals rooted on the fifth tone of a scale ends a whole step lower than the octave instead of a half step, as if flatted. A chromaticist though will describe chords out of key context, as if the root of any chord is the root of the scale, then leading to the 7th being lowered (or flatted) a half step from ti, the diatonic 7th tone. That tends to make a simple thing difficult or pedantic. In fact, all the basic types of chords are built from and named for a diatonic scale. An example of a 7th chord built on the true dominant, the fifth scale tone, is G7 in the key of C, in which the 7th tone is F natural, while the 7th tone if built on a G scale is F#, requiring it to be “flatted” to F natural.
- **Double wound**
Double wound refers to the type of metal strings that has two layers of overwinding. Most commonly this would be the bottom (#1) *wound string* on a typical autoharp. A couple more are possible depending upon the *string schedule* and key setup.
- **Electric pickup**
Electric pickup refers to the amplification devices optionally built into an autoharp and which may have various forms, most notably and effectively the magnetic type in the form of a flat bar mounted across and under the string set. Contact pickups and built in microphones have been tried but are not generally favored over the magnetic type pioneered by Oscar Schmidt. Pickups may be found as factory installations as a model option including tone and volume controls or as an aftermarket add-on with a smaller size, outboard jack and control box.
- **End pin**
End pin refers to what piano and harpsichord builders call *dead pins*. These are short protruding pins on which strings are anchored, typically arrayed in two rows along the end of the frame.
- **ET (Equal Temperament)**
ET is standard tuning or 1/12 *Pythagorean comma*, in which all notes are separated by the same amount, yielding all keys that have the same character, while yielding chords that are significantly compromised from ideal sounding. The purpose is to be able to play in all *keys* and to be in tune with the fixed intonation of fretted instruments. ET will be the default *temperament* and in-tune indication on typical tuning devices and digital apps.
- **Feel (string)**
Feel of a string refers to the relative displacement of a tuned string for a given force (consistent pluck at the midpoint of the vibrating lengths). It can inversely indicate how compliant a string will be to plucking but also is a technical number showing the tighter feeling string has the lower numerical value. Feel has then been calculated two ways, either “how it feels” or the relative displacement. Feel is important in designing string schedules to feel right to the player and to be balanced in response to damping force from the chord bar felt. It can be noticed that the larger diameter strings are lower in *tension* and then more compliant in feel so they can be pushed in line with smaller diameter strings, providing good damping across for a good chord. Ignoring this factor in favor of tensioning and the sound of the string requires that the bridges be lowered only for the larger diameters.
- **Felt strip**
Felt is used in strips rather than the little chunks seen on factory installations. A strip is almost as long as the bar, less on a model C (21 chord) and a bit more on a model B (12/15 chord). The strip ensures uniformity of felt across the bar and provides for cutting notches into a single piece. The remaining segments then have sloping sides and are more stable than the separate chunk method. That method of *felting* is also much faster to install.

- **Felting**
Felting as a verb refers to installing felt damping material on chord bars, not necessarily with felt per se. As a noun, felting refers to the existing dampers mounted on the chord bars.
- **Felts**
Felts is a collective term for felt mounted on the chord bar set or for the individual pieces across a chord bar. Felt is commonly with an adhesive backing, peel and stick. There are various widths of chord bars and *action* heights. The common sizes are close to the bar widths and either 3/16" tall or 1/4", although historically there were a couple shorter, examples of which are the first generation Guitaro, original Wildwood Flower, the 10 chord models, and the Easy Chord, all 5/32" high. In terms of any substitution, felt width must be adequate to damp string vibration, and felt height must be suitable for the action adjustment of the chord bars. Compromising can work but will not be optimal.
- **Fifth**
Fifth in our world is referring to a *scale interval* or the interval by which two *keys* are related. A scale for a particular key has 7 tones, so fifth would be referring to something involving the fifth *tone*. The neighboring keys of F and C, for example, have *roots* a fifth interval apart. C is the fifth tone of the F scale. However, in the opposite direction, C to F, they are a fourth interval apart. The best illustration of fifth is the way autoharp chords, actually key groupings, are arranged. They are a fifth apart, i.e. Eb to Bb to F to C to G to D to A to E to B. The other direction would be in fourths, so enough to say that custom views them in order of fifths. See Circle of Fifths.
- **Fine tuners**
Fine tuners are an option on an autoharp. The term refers to an assembly, a group of parts that allow each string to be adjusted more precisely and easily than with a *tuning wrench* alone using the *tuning pins*. The fine tuner assembly replaces *end pins* or a slotted aluminum *anchor bar*.
- **Finger picks**
Finger picks are picks shaped to be able to be worn and secured on the fingertips.
- **Flat (in pitch)**
A flat pitch is below the desired *frequency* or tuner reading (-). The opposite is sharp or above.
- **Flat washer**
Flat washer is sometimes referred to re the autoharp as the tiny washer underneath the head of the cap screw of a single string's fine tuner mechanism. That washer is not the split washer we see on imports.
- **Frequency**
Frequency is a measure of pitch. Each note in each octave has a desired or actual frequency number. Tuning devices, whether physical or computer app, may indicate actual frequency and some also display target frequency as an alternative to cents (+-)
- **Fully chromatic**
Fully chromatic, as opposed to not fully, means an autoharp that can play all 12 notes of a chromatic *scale* and configured with *string schedule* and chord bars to exploit all the notes in at least one *chord*.
- **Granularity (tuner reading)**
Granularity refers to the detail with which pitch is displayed on a tuner. A note will have 50 cents on either side of the zero indicator. Some devices or apps may show gradations of 10 cents within each 50, while as few as 2 between zero and 10 cents + or -.

- **Grommet**
A grommet is a small, donut-shaped piece of hardware inside the loop formed at one end of a string. Small ones or “balls” are needed for retention in *fine tuners* or the slotted aluminum *anchor bar* of a *Model B* autoharp. Larger grommets are used only on imported strings. Those instruments with two rows of *end pins* and which had factory strings with bronze grommets do not need identical strings as replacements. The replacement strings made by Schreiber in the US do not include a grommet end on “*Model A*”, *Guitaro*, or *Chromaharp* strings. They are *loop end*.
- **Guide pins**
Guide pins are the short pins around which strings pass before attaching to the *tuning pins*. On a *model B* design, the guide pins would be what we call *bridge pins*, i.e. guide pins with a notch and which replace a conventional *bridge*. An alternate name is hitch pin.
- **Guitaro**
The Guitaro is a type of autoharp that was intended to be held somewhat like a guitar. It was offered with 15 *chord bars*, which in earlier generations were activated by a cantilever action, allowing the buttons to be positioned at the left-hand side, where the instrument would be gripped. The cantilever geometry mechanically transferred the button action at the side to the center of the bar. The model has not been produced in about 50 years. The instrument had the same string schedule as a model 73 autoharp but only for the first 24 strings, ending at 24C. That meant that there was a single chromatic octave, 12C-24C, with the bass end well supporting chords for the keys of F, C, and G. The key of D is quite playable also, as on a regular autoharp, but the A/A7 chord as part of playing in D is weakly supported. Luthiers often place a low A in the note array of their chromatics, when playing in D or A is more of a priority in the player’s music. Original autoharps like the model 73 never supported playing in D, and the note array never changed when a D chord was added.

The Guitaro has the distinction for a 15 chord of including a B7 and an Em rather than an Eb Major and F7 or the Appalachians A and E Majors.
- **Harmonic minor**
Harmonic minor refers to a key’s *mode* in which a chromatic *chord progression* is needed to play in minors. The typical progression is i-iv-V7, for example Am-Dm-E7 in the key of C/Am, with E7 requiring the out-of-scale G# note. This is as opposed to natural minor modes, Aeolian or Dorian, which are diatonic and do not use a 7th chord.
- **Harmonics**
Harmonics refers to the unwelcome sounds when *felt* meant to *damp* a string instead creates a *node* in the *vibrating length*, which then allows the string to *chime* but not with a desired note for the *chord*. Refer to thorough articles in the AOM which explain the phenomenon and dealing with it. Harmonics may also refer to the series of additional tones, or partials, that make up the sound of a string heard mainly by its fundamental frequency. These harmonics are not in perfect accord with the *fundamental* and then form the complex composite sound or *timbre* of the string.
- **Harmony**
Harmony is the interaction of two or more notes for varying musical effect. Harmony is as opposed to single notes like a whistle or other instrument that is not capable of playing two notes at the same time. It also refers to two or more instruments or voices playing or singing complementary parts. Harmony is also used to refer to the support for a melody line or vocal part.
- **Hemostats**
Hemostats are a surgical tool with long jaws that can be locked together to grip something. They serve as a handy tool in working on an autoharp and are good to have in any shop. They can serve as an excellent tool for picking up a single autoharp spring for example. *Insert picture*.
- **High end**
High end refers to the short string or higher pitched section of autoharp strings.

- **Hitch pin**
A hitch pin aka guide pin is a pin which redirects a string length. A string bending after crossing a *bridge* passed a hitch pin to force the redirection. Typically, that would be in front of a *tuning pin*.
- **Impedance**
Impedance is a technical term referring to the relative resistance of an instrument component to transfer of energy. The autoharp example is the strings' ability to produce volume and tone quality. High impedance would allow sustain with reduced volume, while low impedance would favor volume and a quick decay...to be more articulate. Impedance as an electronics term may also be encountered in mention of electric pickups or microphones. See Coupling.
- **In phase**
In phase refers to two objects emitting or responding to the same frequency. On an autoharp that could refer to two strings tuned exactly the same to where they take turns sounding and then sound barely distinguishable from the sound of a single string. If slightly out of phase, tuned slightly apart, the strings will have a stronger voice.
- **Inharmonicity**
Inharmonicity refers to strings in different *octaves* having *partial harmonics* that are not exactly related to those of other octaves and which must be tuned slightly different than an expected number to sound right. Some advanced tuners account for this to some extent. If tuning by ear, one would set octaves to sound true without *beating*. Inharmonicity is why piano tuners and autoharp tuners pick a central octave as the foundation against which other octaves will be trued. See *octave stretch*.
- **Interval**
Interval refers to the distance in *scale* steps between two notes. An interval type is named for the number of steps between notes, although an 8th interval is instead called an *octave*, which itself derives from the number 8.
- **Jack**
A jack is a receptacle for a cable plug to allow amplification and is built into an instrument body or provided on an outboard control. It is wired to a *pickup* on the instrument.
- **Just (Intonation)**
Just Intonation is the *temperament* of a *diatonic scale* using natural *harmonics* and *frequency* ratios. There is a Just Major and Just Minor version, the former supporting a V chord and the latter the ii, which are otherwise badly out of tune competing for the tuning of one note. The difference in tuning is known as the *syntonic comma*. Neither version alone is practical, especially on an autoharp or harmony instruments in general, which are designed to play in more than one key (scale). The marrying of the two, tempered to allow both a ii and a V is Meantone (1/4 comma), which effectively flattens fifths while preserving the pure thirds. Just Intonation will not serve even one key completely, while Meantone will serve up to 6 majors and 3 minors. These tunings fell out of favor except for solo instruments. In order to write an orchestral part for a harpsichord, for example, scale steps needed to be more uniform to be compatible with the intonation of fretted instruments like the viola da gamba.
- **Key**
Key refers to the *scale*, the notes, the *chords*. Key is known by the root note of the diatonic major scale. The easiest example is the key of C, which has a scale of CDEFGAB, starting on C. This diatonic scale as major (Ionian mode) has a half *step* between the 3rd note E and the 4th note F and again at B returning to the *octave* C. Music notation for C would show a staff with no sharps or flats. Determining key by examining notation, the staff, would be useful knowledge for any player but best left to a separate tutorial. However, it can be simple, since keys beyond three flats and four sharps are rarely encountered. That is the range of Eb through E, pretty familiar to the typical autoharp's capabilities.

- **Key signature**
Key signature refers to the coding at the beginning of musical notation indicating on what scale the piece is based. The coding uses a hash mark (#) for sharp and what resembles a lowercase B (b) for a flat. For examples, the key of C will show neither, using all naturals, while G has one sharp, and F has one flat. The sharp and flat symbols are positioned on the staff to indicate which notes are sharps or flats. To use a piano metaphor, if familiar, key signature would indicate which black keys would be in the scale, if any.
- **Knot tail**
Knot tail refers to the tie at the end of a string where there is a short piece that protrudes to the side. The piece in that position is vital to preventing the string knot from pulling apart. Some of the heaviest plain strings do not require this tail and are easier to handle if the tail is cut off flush.
- **Lap style**
Lap style refers to playing the autoharp laid flat in front of the player, not necessarily on the lap. This old style is as opposed to playing the autoharp held upright. See Appalachian style.
- **Light springs**
Light springs (or light touch) are those made to have an easier compression and recovery than those on factory-built instruments. This provides a lighter touch on the *chord bars* while needing to be assertive enough to overcome any friction in the chord bar system. Coincidentally, these springs might not be quite as tall as some original springs in order to avoid excessive precompression or preload when the bar set is assembled. Spring height also can affect the bar's standoff from the strings, the *action*.
- **Lock bar**
A lock bar is one of the *chord bars*, although not necessarily with a button, that is *felted* or otherwise padded to block notes that are not part of a desired *diatonic scale*. This allows an instrument that is not a *single key* (diatonic) to enable playing open notes as if a single key. The bar can lock out notes, but the lock part is really the mechanism or *détente* to hold the bar in an engaged position, while the player is operating other bars that are *chords*. This typically would be a component to jam under a *chord bar holder* at each end of a bar to keep the bar down firmly as if being operated by the player while preventing it from rising under spring force.
- **Lock washer**
A lock washer or split washer is a small piece of hardware found on an Oscar Schmidt *fine tuner*, if imported from Korea or China. It is not the proper type and the set is often replaced with flat washers.
- **Loop/Loop end**
Loop refers to the string end that bears a loop and knot that will fit over an *end pin* to secure the *anchor end* of a string. This type of string end replaces the *grommets* larger than those of *model B* strings and which were used on the *model A* or similar design or on a *ChromaHarp*. The size of the loop will reduce under *tension* until firmly gripping its end pin. The design of the knot enables it to slip along the string length and allow the loop to draw down on the end pin until stable.
- **Low bass**
Low bass refers to the few very largest strings at the bottom of the *string array*. These could be thought of as 1F-5E in a standard string set, typically brass or bronze in color, above which the *octave scales* are more complete.
- **Lumbert felt**
A special size felt for the narrow bars made by Lumbert Mountain (Buck Lumbert). This size is approximately 3/16 x 3/16. In terms of any substitution, felt width must be adequate to damp string vibration, and felt height must be suitable for the *action* adjustment of the *chord bars*. Compromising can work but will not be optimal.
- **Luthier**
A luthier is a person who builds autoharps or other instruments, usually from wood.

- **Major third**
Major third is an *interval* between notes defined by two whole *scale steps* between three scale notes. A *scale* is made up of *whole and half steps*, so a major third must occur where two consecutive whole steps occur in the scale. For example in C, the interval from C to E is a major third, with D in between. From D to F includes a half step between E and F, so is known as a *minor third*. The C scale is C-D-E-F-G-A-B-C with half steps at E-F and B-C. Major thirds are C-E, G-B, F-A. See *minor third*.
- **Meantone**
Meantone is a term of temperament, a tuning system. True meantone results from averaging the major and minor tunings of the second scale degree in Just Intonation to achieve a system that would serve multiple keys while preserving the consonance of the thirds. For example in C and Just Intonation, Just Major uses a D note that needs to be tuned very differently for the V chord G, than needed for the II^m (ii) of D^m in Just Minor. For a harmony instrument that is not orchestrated to deliberately avoid an out-of-tune chord, meantone is the only useful approximation of Just Intonation. Meantone results in flattening all pure fifth intervals (702 cents), by $\frac{1}{4}$ of the *syntonic comma* or 5.4 cents, typically tuned as 3.4 cents (3.4225) lower than the Equal Temperament standard of 700 cents. “ $\frac{1}{4}$ comma meantone” is often seen, but there is only one true meantone, so the $\frac{1}{4}$ part is to distinguish the temperament from other systems which apply various fractions to either the syntonic or Pythagorean comma. The term Meantone alone means or implies $\frac{1}{4}$ syntonic comma. “Mean” is an average, and there is only one temperament that does any averaging per se.
- **Melody**
Melody is the part of music that conveys the essence of a composition separate from support by harmony, rhythm, and tempo. Notation of a single part such as might be found for a song would be a melody line. If thinking “how does the tune go?”, that would be a reference to the melody.
- **Metric/US (fine tuner screws/wrenches)**
Metric/US refers to the differing measurement systems between US production and imports. US made *fine tuners* from Oscar Schmidt briefly in the early 1980s used $\frac{3}{32}$ ” *Allen wrenches* for the adjustment screws. A couple more recent US versions did also. Imports later and those seen on Orthey and Fladmark instruments beginning in the mid 1990s were all metric M2.5 wrenches over M3 screws.
- **Micrometer**
The micrometer is a tool to measure an outer dimension of a small object, in our case a string diameter. It can be slightly more accurate on outer diameters of round objects than calipers. Measurement is usually to one thousandths of an inch (.001). *Insert picture*
- **Midrange**
Midrange for our purposes refers to the middle section of strings, the “middle octave”, a complete chromatic octave of strings from 12C to 23B, as might correspond to the way Oscar Schmidt used to group strings in a set. The note names on a tuner would be C4 to B4.
- **Minor third**
Minor third is an *interval* between notes defined by one whole and one half scale step between three *scale* notes. The *half step* can occur before or after the *whole step*. A *scale* is made up of whole and half steps, so a minor third must occur where a whole and half step in either order occur in the scale. For example in C, the interval from D to F is a minor third, with E in between. D-E is whole and E-F is half. From C to E includes two whole steps, so is instead known as a *major third*. The C scale is C-D-E-F-G-A-B-C with half steps at E-F and B-C. Minor thirds are D-F, A-C, and E-G, the latter E-G where the half step occurs first. See Major third.

- **Modal**
Modal is sometimes used to refer to tunes that use *scales* other than the ordinary major or minor scales. For an autoharp player that would often be noted as a tune that began on neither the root of the key, the I chord, nor the relative minor vi. For example in D, that would be scales starting or ending on other than D or Bm. Modal would commonly include Mixolydian on the V or Dorian on the ii. In our example D, that would be the A Major (not 7th) or the Em respectively.
- **Mode**
Mode refers to the *diatonic scale* resulting from beginning at a step in the scale, not always the root. For example in D, a mode could start on the V (fifth scale degree), the A chord, the mode name of which is Mixolydian. The mode scale derived from each step has a name. Since a diatonic scale, a key, contains two half steps, the starting note of the scale determines the mode and imparts a unique sound and *chord progression*.
- **Model A**
Model A is a reference to the old black autoharps dating to the Model 73 in the late 1890s or to instruments made in that style. Autoharps of this type require a specific string set because of the way they are mounted and the *scaling* (winding lengths). Key characteristics are the strings anchored on two rows of *end pins* as well as the style of *bridges* with a platform crowned with a metal rod.
- **Model A style**
Model A style is used to refer to instruments that are made with the key characteristics of old Model A models from Oscar Schmidt. Most autoharps built by luthiers are essentially Model A style. That would include *bridges* and *end pins* and usually distinct from *Model B*.
- **Model B**
Model B is a style of autoharp introduced by Oscar Schmidt in 1967 and fully developed by 1969. The model's key characteristics are a slotted aluminum *anchor bar* and *bridge pins* (or guide pins) in place of a conventional *bridge* in front of the *tuning pins*.

Model B is also a type of *chord bar* distinguished by an aluminum base with a plastic cap and button and 5/16" wide. Model B can also refer to the size of *felt* but is actually the same as used on a Model A. Thus, the felt size may be referred to as A/B.
- **Model C**
Model C is a type of chord bar used under a *chord bar cover*. It has been seen as a 12, 15, or 21 bar set, all with varying number of holes in a cover while wide enough to fit 21. Since about 1975 the bars were used only as a 21-chord set. It is also the name of the felt size to fit this bar type (7/32-1/4 wide). Model C felt height varies from 3/16 to 1/4 but is not called by different names on that basis. While it might be intended for a hand made bar set of less than 21, Model C felt is often referred to as 21-bar felt, allowing that a 21 narrower bar set by Lumbert would be a special size.
- **Model D**
Model D is a type of *chord bar* set that was modeled after *Model B* but set lower and with bars not quite as tall. Model D is also a size of *felt*, also 5/16" wide but distinguished by its 3/16" height. Recent production 15 chord autoharps and even older *ChromaHarps* are all Model D bars and felt.
- **Modulate**
Modulate means to change keys within a tune.

- **Mountain Harp**
The Mountain Harp was invented and produced by Ron Wall. It is played very much like an autoharp and is an autoharp in principle. The instrument has 30 strings and 15 *chord bars*. It plays only *diatonic* in one or two keys. When in two keys, it has no *doubled strings*. The instrument is significantly longer and deeper in body than a common autoharp. There are also a few prototypes of standard autoharp size, retaining the unique way the larger model produces its sound and how the strings are mounted.
- **Musical Scale**
Musical scale refers to an organized sequence of notes that forms the basis of a melody or its harmony. The primary types of scales are diatonic (7 tone) or chromatic (12 tone). On an autoharp that would mean what notes were provided, either fully chromatic or something less down to perhaps only a single key diatonic. Musical scale will also refer to the notes in a particular key. Scale names are expressed as major scale, Ionian mode, while a “minor key” is actually a mode called Aeolian using the same notes. For example, G and Em have the *same key signature* of one sharp (#). G as Ionian mode starts on G, while Em as Aeolian mode starts its scale on E, changing the diatonic order of whole and half steps within the seven-note sequence.
- **Natural minor**
Natural minor refers to the minor chords that can be formed within a single diatonic scale and as opposed to *harmonic minor* which reaches outside a scale, i.e. is *chromatic*. For example in C, the Dm, Am, and Em are the only natural minors. That would be the 2, 6, and 4; ii, vi, and iv. A harmonic minor example would be a *chord progression* with minors that required a 7th chord from outside the key, for example Am and Dm adding E7 with its G# outside the C scale/key.
- **Needle-nose pliers**
Needle-nose pliers are a tool commonly used to handle the end of a string being mounted to a *tuning pin*.
- **Node**
Node refers to a point on a string where the string will not vibrate and which when touched lightly will cause a harmonic or chime to sound.
- **Note array**
Note array refers to the set of notes selected for the string positions. It is one of two elements of string schedule, the other being the string array (sizing).
- **Octave**
An octave is an *interval* of either twice or one half of the frequency, moving up or down in pitch respectively. A chromatic octave has 12 notes a half step apart. With a C root that would be C, C#, D, D#, E, F, F#, G, G#, A, A#, and B. Octave on an autoharp may be referring to the classic design having a bass section of notes and then two complete octaves rooted on C. This can be viewed as three octaves, F to F, plus a high partial octave, but the lower end of the note array does not have complete F chromatic scales. The “bass” or wound string section should be viewed separately from octaves as a set of notes.
- **Octave number**
Octaves are customarily numbered starting on each C natural. The numbering is based on the octaves on a grand piano beginning with the bass notes. The autoharp has a low of C3 and high of C6. Each higher note that follows a C and before the next higher pitched C would carry the octave number of the parent C. For example, all the notes from 12C to 23B would carry the designation of 4, the fourth grand piano octave beginning on a standard autoharp at 12C.

- **Octave stretching**
Octave stretching refers to tuning a higher octave *fundamental* slightly sharp to account for higher *partials* (harmonic frequencies) sounding slightly *flat*. In the other direction, lower strings might need to be tuned slightly flat, partials sounding *sharp* otherwise. The *foundation octave*, typically in the middle of the string array, is tuned true, and then the other octaves are tuned relative to it according to the influence of their partial harmonics. This is complicated by an over wound string, which can have complex *harmonics* or a weak *fundamental*.
- **Open chording**
Open chording is a term publicized by the Autoharpoholic magazine in the earliest days of diatonic autoharps. It refers to when having only a diatonic scale, quickly passing notes or passages that need to sound smooth (*legato*) can be played without a chord bar always down on the strings. Typically, the technique is down-up-down, virtually keeping the beat with the chord bars. Without the technique, faster tunes would not be practical for the common player with many more quick chord changes. Thus, some music is better suited to open chording than a “chromatic” type technique, one with a chord bar down on every note with more chords involved.
- **Open noting**
Open noting is a more apt name for *open chording*, since the technique enables notes rather than chords. One does not literally play a chord “open”. The point is more how the strings are played rather than how the bars are operated. One must still strike the right string, while the *diatonic scale* is forgiving, mostly free of discord except for two half steps.
- **Open-bar chord set**
Open-bar chord set is as opposed to a chord set with a cover. The open-bar set has exposed bars with affixed rather than free-riding buttons and with holders at each end of the bars.
- **Orthey bar**
An Orthey bar is a device patented by George Orthey and which can be easily attached or removed from an *open-bar chord set*. The bar attaches outboard on the side of the *chord bar holders*. The bar is a *lockbar* of sorts, without requiring dedicated *chord bar* space, intended mostly for a *chromatic* instrument and which would allow an *open noting* technique, *damping* all the strings except those in one *diatonic scale*. It can be used as a way to sample open noting, but one would need to have small keepers mounted by the luthier to the sides of the two chord bar holders. The bars are intended to be attached at the *anchor end*. In order to provide adequate damping as a lockbar and to provide material for an attachment tab at each end, the bars are made double width, *felted* to 5/8” wide and notched on the ends. The bars in original form are made of wood to match the chord set.
- **Overtone**
Overtone refers to acoustical effects beyond the fundamental frequency of a vibrating string or primary air resonance of a hollow-bodied instrument. Overtones are usually a series of tones and are considered desirable and part of an instrument’s “voice”. The effects are valued most if well balanced or at least not prominent across the range of notes, *bass* to *treble*.
- **Overwound**
Overwound refers to heavier strings that require one or two layers of winding over a core wire in order to achieve lower pitches at practical lengths. The overwinding adds mass to the string’s *vibrating length*.

- **Partial 7th**
Partial 7th refers to a *chord* that is missing its *major third* and which is included in a chord set to passably serve an additional key, whether major or harmonic minor. They are used on configurations that are not fully *chromatic*, where the note for the *major third* is not present. For example, a “diatonic” that plays in G and D can fake the key of A Major by addition of a partial E7 (EG#BD), which would be missing a G# in a G/D *string schedule*. The chord is still three notes per octave and can serve to play along without having a sound that anyone admires by itself. It keeps a diatonic in the game, as it were.
- **Partials**
Partials are *harmonics* that are sounding at the same time as the *fundamental* and which are not always the same note. The partials most audible are higher than the fundamental. Partial will not be precisely in tune with the fundamental, so a certain balancing must be achieved to derive a finished tuning of intervals. To some extent the *frequencies* of partials are predictable (calculated), so better tuners and tuning apps account for them when indicating “in tune”. A good ear with some training will always be the best judge, but tuners seem to provide a passable result.
- **Pentatonic**
Pentatonic is a type of *scale* with only five notes and no half steps between notes. A C-pentatonic scale, for example, would not include an F or B to be diatonic, only CDEGA.
- **Phillips head**
Phillips head is a type of screw or screwdriver and will be found mentioned as essential to the autoharp, whether tool or hardware. There are various sizes. The Phillips is distinguished by the cross pattern.
- **Picks**
Picks are plectra of various types and can serve either to protect the fingertips or nails or as a means of achieving a stronger plucking or strum of the strings. Picks can be finger or thumb, most commonly two fingers and the thumb. Picks are important protection if desiring to play loudly for extended periods. They can also allow a melody to stand out more clearly.
- **Pickup jack**
Pickup jack refers to the receptacle for a cable connection on an electric sound reinforcement device connected to an amplifier.
- **Pinch**
Pinch is a playing technique in which the thumb and one or more fingers are drawn together over multiple strings.
- **Pinch/pluck**
Pinch/pluck is a playing technique in which a *pinch* stroke is followed by a specific plucking of one or a few strings. This enables a semblance of a melody to be played without the staccato of pinching out every note. It also allows playing through chord changes faster and more easily. In order to achieve this technique one finger must be kept out of the pinch motion and be available for the next note, while the pinch motion resets for what follows. The common technique then is pinching with middle finger and thumb, possibly including the ring finger with its own pick (third), and reserving the index finger with good dexterity and twitch capability for the pluck to follow the pinch.
- **Plain wire**
Plain wire refers to strings that are just wire with no overwinding, such as one would find on at least 15D# through 36C. These are as opposed to *wound strings*.
- **Play-through**
Play-through refers to inadequate damping of the felting on or force applied to a chord bar. Even if felt is touching a string, the string can still make a noticeable sound if not fully *damped*.
- **Pluck**
Pluck refers to striking a string or confined section of the string set with one finger.

- **Pythagorean (comma)**
Pythagorean will be encountered in reference to the manner in which temperaments are constructed. A technical term for Equal Temperament, considered the modern standard, is 1/12 Pythagorean comma. When all the 12 fifth intervals are pure (~702 cents), the last and first will overlap by approximately 24 cents. By reducing the width of (flattening) all the fifth intervals by approximately 2 cents (to 700 cents), the overlap is eliminated, and the temperament will equally support playing in any key.
- **Quick-change chord bar set**
A quick-change chord bar set is an open-bar type with *chord bar holders* that have hinges and a handy swinging tab or *détente* of some sort to keep the holders closed. This allows the holders to quickly and easily flip down and allow swapping out chord bars for a tune that needs a chord not in the standard set. Actually using this capability would require securely carrying additional bars/chords and having the time to make a switch.
- **Regular**
Regular is found in reference to *temperaments* in which all the *fifth intervals* are the same width. They are regular temperaments. Equal Temperament is a regular temperament. Unequal or irregular temperaments were devised to allow primarily keyboard instruments to interact with orchestras. All of the true comma split temperaments are regular, .e.g. Silbermann aka 1/6 comma. Others begin with primary keys that are regular and then attenuate into keys with different sizes of fifth intervals and musical impressions given by the sound. A useful example is Young II, which is 1/6 comma attenuated, a system that retains the better thirds of Silbermann for a couple keys but across an entire chromatic scale stays much closer to Equal Temperament used by fretted Baroque period instruments.
- **Relative minor**
Relative minor refers to the *vi chord*, the minor that can be formed on the 6th *scale* degree. A *diatonic scale* of a key has 7 notes. An example in the key of C is Am being the minor “relative” to C. The A note is number 6 in a C scale. In many chord layouts the relative minor is positioned very near its relative major, the root of the scale. Thus, Am would be close by C Major. This positioning will not be the case on a factory layout, since the tradition there was to group minors and 7ths in patterns to form *harmonic minors* (chromatic) rather than *natural minors* (diatonic). That would be Am-Dm-E7 in C. In terms of an A harmonic minor scale, that would amount to i-iv-V7, the minor version of the 1-4-5 *chord progression*.
- **Resolution**
Resolution is a term of melody or harmony referring to when a *chord progression* or melody line returns to a state in which a musical device seems complete, typically the end of a phrase. A simple example would be a major key passage ultimately returning to the root major chord, the I. A V7 can either move to a IV or resolve to the I. For example in C, playing G7 and then C is a resolution.
- **Resonance**
Resonance refers to the sound generated by an instrument being amplified naturally by the design of the instrument body, typically a hollow chamber with elements that have musical properties and no stronger or heavier than necessary.
- **Scale**
Scale refers to a sequence of notes, as many as 17 or even more in historical or experimental music but typically 12 for a chromatic scale or 7 for a single *key signature*.
- **Scaling**
Scaling refers to the series of vibrating lengths the builder has designed into the instrument.
- **Screw tab (metal clip)**
A screw tab is one of four metal angle pieces held under the combs that provide for attachment of an Oscar Schmidt chord bar cover.

- Seating (string, ball)
Seating refers to mating parts being fully joined in the intended positions without permanent attachment. An example is a fine tuner cam being aligned with the crown of the base, allowing optimal function.
- Self-stick (peel 'n stick)
Self-stick refers to the backing on *felt* strips or other materials that when removed will expose an adhesive surface.
- Semitone
Semitone means a half step between notes. For example, E to F is a half step in a C scale, while F to G is a whole step or whole tone. In a chromatic scale, each of 12 notes is a semitone apart, while the 7-tone diatonic scale of a single key has a mix of 5 whole tones and 2 semitones. A semitone is 100 *cents*.
- Serial number
A serial number is a unique number and thus, numbers stamped on autoharps are not always true serial numbers, not unique. True serial numbers only appear on Korean or Chinese imports (by Oscar Schmidt) or on a luthier's build, on which it might be hidden. Numbers on Japanese instruments are not unique. Few US vintage autoharps had serial numbers, perhaps the only ones being the 1982-83 Festival models, OS200 and 210.
- Set up
Set up is referring to adjustments and enhancements to an instrument to make it ready and fit to play. Factory instruments right from the box, although usually playable when tuned, need additional work to be serious instruments.
- Seventh (7th)
Seventh is a *chord* or referring to the last tone in a *diatonic scale*. A 7th chord has four notes and can vary by combinations of *major and minor third intervals*. The names of types of 7th are major, minor, diminished, major-minor, minor-major, augmented minor. A dominant seventh is not a type of 7th but rather the name for a major-minor 7th's role within a specific key, the familiar V7, built on the “dominant” or fifth step of the scale. However, it is very common practice to refer to major-minor 7ths as “dominant 7ths” (diatonic) or “flatted 7ths” (chromatic, viewing the root of the chord as the root of the scale requiring the 7 tone to indeed be *flatted*, i.e. lowered a half step).
- Sharp (in pitch)
Sharp refers to a pitch (a string or of other instruments) being higher than desired or than some standard.
- Shepherd's hook
A shepherd's hook is a small, sharp bend in the end of a string that allows it to be captured by a *tuning pin*. Common practice is to have the end be short enough for the sharp point to be inside the tuning pin hole (*becket hole*) to avoid injury to anyone handling the instrument. A shepherd's hook is created with small pliers, usually *needle-nosed*, that can impart the sharp bend in the wire.
- Shim
A shim is a form of spacer to improve the fit of components. A shim might be found within adjustment of *chord bar action*, fit of a chord cover, under chord bar buttons, etc.

- **Silbermann**
Silbermann is the name of a temperament often mentioned as in common use on diatonics. It is not very practical on a chromatic because it is not designed to serve all keys (close the circle of fifths) and because it can drive some notes rather far away from the tuning of other instruments. One to three keys is ideal. There are two versions of Silbermann with a suffix of a plus sign (+) designating a basis of 1/6 of a Pythagorean comma (23.46 cents) and a suffix of a minus sign (-) designating a basis of 1/6 of a syntonic comma (21.51 cents). The (+) version has fifth intervals progressively lowered 2 cents (1.955) from Equal Temperament (standard), while the (-) version lowers fifths by 1.6 cents (1.585). The + is the same as “1/6 comma” usually found in many presets on tuner apps but not always the same...best to verify. Historically it was more common to use the value of the Pythagorean comma in devising temperaments. Silbermann was an organ builder in the Baroque period, with some of his instruments still maintained and played in cathedrals, complete with the temperament named for him.
- **Siliconing**
Siliconing refers to coating the surface of *chord bar felts* with a thin coat of silicone adhesive as a way of prolonging *felt* service life.
- **Single-key**
Single-key refers to a *diatonic* autoharp, one that plays only one scale.
- **Single wound**
Single-wound refers to a wound string with only one layer of overwinding as opposed to *double-wound* in those with larger diameters.
- **Slider strap**
A Slider Strap is worn to distribute the instrument’s weight to both shoulders.
- **Slotted head**
Slotted head is a type of screw and the slotted tip screwdriver to match. Autoharps typically have Phillips head and slotted head screws.
- **Snipe-nosed pliers**
Snipe-nosed pliers are pliers with pointy, cone-shaped tips, and in the small jewelry craft size can be used to grip the ball end of a string to keep it from rotating while bending *a string tail* back against the ball.
- **Solfeggio**
Solfeggio is a system for sight singing and *interval* training. Among the tricks used is to learn that a 4th is Here Comes the Bride, a 5th is Twinkle, Twinkle Little Star, and a 6th is My Bonnie Lies Over the Ocean. The familiar do-re-mi-fa-sol-la-ti-do is diatonic solfege, while chromatic has half steps as do-di-re-ri-mi-fa-fi-sol-si-la-li-ti-do, all pronounced with Latin vowels.
- **Sound hole**
Sound hole refers to the opening in a hollow-body instrument. Typical autoharp sound holes are on the face of the instrument. A sound hole serves to enhance the bass tones. The best location for a sound hole is debatable, but the strength of the panel under string *tension* must be considered, possibly requiring reinforcement because of the hole or to preclude a split in line with the exposed end grain at the hole. Binding or rosette glued around the cut serves this purpose and is not just decoration.
- **Sound hole label**
Sound hole label refers to the paper label inside an instrument, on the back surface, and visible through the sound hole. It will identify the brand along with maybe a date made, model number, and serial number.

- **Spice chord**
Spice chord refers to a chord that is not one of the majors, minors, or 7th chords and which can enhance a *chord progression* that is slow moving and can benefit from addition chord movement. These are usually chords with leading tones that suggest movement between the principle or basic chords. Examples are suspended 2 or 4, major or minor 7 (aka 6ths), add2, add9, etc. Some refer to these chords as color chords, but there is precedent for that term meaning a tune providing out-of-scale 7th chord chromatic movement in the melody (Alan Mager- AQ).
- **Springs**
Chord bars ride on various forms of springs to allow them to retract once employed.
- **Standard tuning**
Standard tuning usually refers to Equal Temperament, which is the default temperament on tuning machines and software. It could also include A440 calibration, which can move every note up or down by some degree. That is typically an adjustment option on a tuning aid.
- **Step**
Step refers to movement within a *scale*. Since there will be whole step and half step references, take it that a step, i.e. a whole step is 200 cents rather than a half step of 100. An entire 12-tone, chromatic scale is 1200 cents comprised of 12 half steps. An example of a whole step in a single scale of C would be C to D, while a half step would be E to F or B to C.
- **Strap button**
A strap button is a small knob mounted to allow attachment of a strap. An autoharp would typically have at least two, while a fretted neck instrument like a guitar might use only one and tied with a lace at the tuning head. Having a leather strap button tab at each end and shorter adjustable length is why dulcimer straps are better suited to autoharps than guitar straps.
- **Stress**
Stress refers to the reaction to force such as might occur to an autoharp structure from string *tension*. It might also refer to the result of *tension, pitch, and vibrating length* on a string. Strings break from stress on the cross section, only indirectly from *tension* on the length.
- **Stretch**
Stretch may refer either to pulling on a string to get the tuning to stabilize, or it may refer to tuning high strings a little sharp and low strings a little flat to make the *octaves* sound true. Common tuners do not account for this, which is usually done by ear. Only the very smallest and very largest strings are significantly affected and require slight adjustment to sound *concordant*.
- **String array**
String array refers to the sizing of the string diameters across the string set. It is one of two elements of *string schedule*, the other being the *note array*.
- **String bed**
The string bed is the plane of the set of strings. In order to allow good *damping* by the *felt* on a *chord bar*, the string bed must be as level as possible, while allowing that different string diameters make it slightly uneven.
- **String buzz**
A buzzing sound from a string can be caused by irregularity at the *bridges* or by a winding that is loose.
- **String drift (AOM* p. 27)**
String drift refers to the eventual change in tuning that results from friction between a string and a *bridge rod*. When tuning, the *tension* on either side of the bridge rod will be different. Once *tension* eventually equalizes, the tuning of the string changes. Drift is best managed by playing roughly for a bit and then doing another touch up of all the tuning. String drift can be regulated by how firmly the string is drawn over the bridges, while ensuring that the draw down force is sufficient to achieve a clear sounding terminal in the string's vibration.

- **String groove**
String groove refers to a passage for a string. That could be a groove forced into a *bridge* rod or the cast groove in a *bridge pin*.
- **String memory**
String memory refers to the phenomenon of a string tuning gravitating back to a pitch it held for a long period, perhaps years. The string would then no longer be as elastic as it once was. Old and brittle strings should be replaced, at least to aid in maintaining tuning.
- **String number**
Strings are numbered from bass to *treble* on an autoharp and in reverse on a *Chromaharp*. For example, the lowest pitch and longest string is considered #1F by the Oscar Schmidt standard.
- **String schedule**
String schedule refers to the array of string diameters and notes chosen to support a given tuning. For example, many configurations that are not *chromatic* are optimal only with some custom string sizes. The string sizes control the *tension* on the instrument and how the string responds to an effort to pluck it (feel). There is also consideration of whether a string diameter is consistent enough with its neighbors to easily enough be pushed in line for damping by a chord bar that is essentially flat. The two principle elements of a string schedule are the *note array* and the *string array*.
- **String stretching**
String stretching refers to pulling and otherwise tensioning a string, perhaps tuning it higher initially, so that the tuning will settle in. What is actually happening is mostly the *ball* or *loop* end knot drawing down completely. Before a new string becomes stable, there is believed to be some actual stretching of the wire, which has some elastic property.
- **Strobe**
Strobe is a type of tuning aid with a display that will indicate harmonic ranges that line up and become steady when a string is in tune with the target frequency. A strobe tuner is regarded as the most accurate among portable equipment and is the type used by professionals. Since evolving into software versions, the strobe metaphor has become much more widely available to the average musician, not just a piano technician.
- **Strum**
Strum refers to a playing technique for the thumb and usually implying use of a *thumb* pick. The thumb is typically drawn from low pitch to higher, beginning in the bass octave area. There are other ways to strum and with other fingers or types of *picks*, with the definition really meaning to draw across and sound a number of strings in a single stroke.
- **Suspended**
Suspended refers to a type of chord that creates a lead-in impression or sense of direction that resolves to a more *consonant* chord. In common applications, a suspended 2 resolves upward to a *major triad*, while a suspended 4 resolves downward to a major triad.
- **Sweet**
Sweet is in common use to refer to very *consonant* tuning or as a reference to a tuning that improves on the sound of Equal Temperament (standard). Sweet may refer to an entire system across a key or a *chromatic* scale. Such temperaments attempt to preserve some of the consonance of Just Intonation, a natural relationship of intervals, what one might achieve by ear, while devising a system that can be used across a number of keys.
- **Sympathetic vibration**
Sympathetic vibration is when one vibration causes another component to vibrate without having been directly stimulated. They respond to the same frequency. An example would be a chord bar spring that buzzes when a certain pitched string is plucked. Another example encountered in tuning is when strings in different octaves respond to plucking of a string in a higher or lower *octave*.

- Syntonic (comma)
Syntonic is a term that may be encountered in mention of *temperaments*. The syntonic comma is the amount in number of *cents* by which the *major* and *minor third* intervals vary in *Just Intonation*. In Just one cannot play both a ii and a V, because they share the second scale degree that needs to be tuned 22 cents differently for each chord. There then are two versions of Just, one major that allows a V, no ii and one minor that allows a ii, no V.
- Tabulature/tab
Tabulature or tab for short is an instrument-specific system of indicating how to execute a piece of music. It includes picking and strumming instructions, not just notes and chords.
- Tech
An autoharp tech is a person who services autoharps as opposed to a *luthier* who builds them.
- Temperament
Temperament is a tuning scheme. Perfectly *consonant* tuning for most music with harmony is not possible or practical, so there are various systems for allowing more versatility, while attempting to preserve as pleasing and as consistent a sound as possible. Modern standard tuning is formally known as Equal Temperament, which does not allow the autoharp to sound its best alone but will allow compatibility with other instruments.
- Tempering
Tempering is a tuning term meaning to compromise from purity on one *interval*, since the note may require a different tuning when in a different role in another chord or key. For example, if one tuned by ear to achieve what sounded perfect on C Major, the result would likely need to be tempered to allow the notes to play a role in other keys. Tempering also implies an effort to impart uniformity across keys, specifically the consistent character of *intervals* (impression or color) such as *fifths*, *thirds*, and *fourths*.
- Tension (string)
Tension is a term encountered in reference to strings and the affect tuning has on *pitch* and the force on either end anchoring the string. The cumulative tension on an autoharp (or similar zither) approaches a ton, at least 1700 pounds on the old models...thus, the stout construction and then limited tone and volume. Autoharp strings are different diameters to regulate both *timbre* and *tension*. For example, the higher strings cannot be the heavy wire used on lower *octaves*. In theory, higher pitches could be achieved regardless of wire size, but only the smaller diameters create the proper balance in the system and keep the tension within range supported by the strength of construction. Smaller wire also allows the strings to give way when being plucked (*feel*).
- Third
Third is an *interval*, a number of *scale steps* between notes. The steps may be whole or half depending upon the scale. The third note in a *scale* separated from the root by two whole steps is a *major third*. A whole step and a half step form a *minor third*. Examples in C would be C-E (C + whole to D + whole to E) as a *major third* and A-C a *minor third* (A + whole to B + half to C). E-G is a *minor third* where the half step occurs first (E to F is half and F to G is whole).
- Thumb lead
Thumb lead is a playing technique with the picking hand. It is typically done with a thumb pick of good length and point. The strong beats of a melody are played with the thumb. This is usually done very rhythmically and at a quick tempo. It is not a strum but rather spearing of individual notes (strings). The other component is the draw with the index finger as the thumb is reset (wrist rotated) for another stroke, playing yet another note, although some proponents will play the same string with both strokes (Mike Fenton). An example would be a dada-dada-daa, dada-dada-dada-daa, etc. playing a melody like Whiskey Before Breakfast. Thumb/pluck-thumb/pluck,thumb. The wrist motion is like turning a doorknob and is going to go best with a straight wrist.

- **Thumbing**
Thumbing refers to strokes on the strings with the thumb, usually with a *pick* of some sort. Perhaps one could also refer to pressing a chord button with the thumb as thumbing.
- **Timbre**
Timbre is the character of a sound, perhaps a single string, or the characteristic composite sound produced by an entire instrument or piece of music.
- **Tonal**
For our purposes in music, tonal refers to sound.
- **Tonic**
Tonic is a term of music theory referring to the root note of a *scale* or a *chord* built on that note. For example, the tonic of the key of C is C. Rather than just state “C”, tonic can be a general reference without identifying a specific key (“return to the tonic”).
- **Transpose**
Transpose refers to changing music to a different key. That might include a process or rules of thumb for exactly how to do that in terms of notation, while on the autoharp one can simply shift hand positions and usually employ the same fingering pattern. For notation there are guides and charts that assist in the transition.
- **Treble**
Treble refers to higher pitched notes or an area of the strings or to the sound produced by that area. Treble is the opposite of bass, although baritone might be another gradient that we rarely see in reference to an autoharp. The autoharp is basically a treble instrument, having very limited bass and size of tone chamber.
- **Tuning by ear**
Tuning by ear refers to devising a tuning without the aid of a tuning device, usually with the help of a reference tone such as a tuning fork or these days a pitch pipe app on a phone.
- **Tuning pin wraps/coils**
Tuning pin wraps/coils refers to the segment of a string that is wound around a tuning pin. Each turn takes up approximately 5/8”. 3-3 ½ turns are usually sufficient.
- **Tuning pins**
Tuning pins are at one end of the strings and are turned with a special wrench to achieve tuning. Each string is secured to its own tuning pin.
- **Tuning wrench/key**
A tuning wrench or key is a special tool that fits the tuning pins and provides enough leverage to turn a tight pin with some control of how much. It may be used for complete tuning or, in the presence of *fine tuners*, still be used for rough tuning and for changing strings.
- **Voicing**
Voicing refers to designing a *string schedule* to produce a balanced-sounding chord set or to impart more or less bass to the *chords*. It is most often seen in reference to *felting* to leave some available strings out of certain chords, where to include all possibilities would create an imbalance or odd sound.
- **Vibrating length**
Vibrating length refers to the portion of a string between terminals or *bridges*, the portion that produces sound when vibrating.
- **Washer**
Washer is a piece of hardware referred to usually in reference to *fine tuners*. There is either a split washer under each cap screw head on imported fine tuners or there is a flat washer type, more appropriate, on USA production and *luthier* versions.
- **Wire cutter**
A wire cutter is a type of pliers with hardened blades in the jaws that are able to cut through steel wire by squeezing the pliers closed.

- Wolf
Wolf is a term that has various applications always means a sound to be avoided, tuned out, or designed out of the instrument.
- Wound string
Wound string refers to the strings in the autoharp's bass range that have over windings on a core wire. Wound is as opposed to plain string or wire. Wound strings can have one or two layers of winding.
- 2-key
2-key refers to an autoharp configured to play in either of two keys. It will not be *chromatic* nor use a standard *note array* or string set. It may or may not have *lock bars* to enable *open noting*. The two keys can be accomplished with 10 chords, perhaps adding two lock bars, but it would not be unusual to find a chord set filled all the way out to 21 using additional chord possibilities within the two keys.
- 3-key
3-key would have a similar explanation to that of 2-key. The basic chord set would be 13 but is typically trimmed to 12 and carrying three lock bars for a total of 15. That is the number that will fit before encountering *harmonics* at the $1/3$ *node* in the bass strings. The 3-key is especially noteworthy because, while being versatile, it provides chords that have a string count above the threshold where the scratch sound of a chromatic autoharp can be distracting. George Orthey called it the thwick-to-ding ratio but it is defined earlier here as *damping ratio*. The absence of that scratch is one of the appeals of “diatonic” instruments and is also part of the appeal of 7th chords. There are more strings ringing in the chord.