

Tools

For a successful alternative modeling work, it's necessary to do a certain investment in some tools. In general, the acquisition of drawing material, like rulers, compass, protractor and square is a basic need. These tools will be useful for the scale transformation work and for the plan and confection of structural drawings.








Beyond these above tools, a set of basic and low cost tools will need to be acquired, in order to allow the cut of the basic materials, the folding of beer cans, the drying of glued parts of the model (without the risk of the surfaces get separated one from another) and the measurement of irregular surfaces.



There are a lot of different tools in the market, with different designs and functions. Each person will better adapt himself to a specific tool. If you, although, go out to find and buy different tools, just for try, you will certainly expend so much money. The best option you can chose, in my opinion, is to start with a basic set of tools similar to that I present now.

Following, is the list of the tools that I recommend for the confection of your alternative models:





Basic tools:




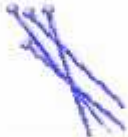
	COMBINATION PLIERS
	A combination pliers will be useful to cut, to fold and to hold parts during its handcraft. This pliers is specifically designed to firmly catch the used objects, but it can damage them during pressing. As any general purpose tool, its use is less indicated for each possible function than the use of a specific tool.
	It can be found in any hardware store or any home improvement store.






	<p>SIDE CUTTER</p> <p>It serves to cut wires, in such places where the previous tool are not able to reach.</p> <p>It can be found in any hardware store or any home improvement store.</p>
	<p>SPRING CLAMP</p> <p>The spring clamps are used to hold model's parts that need to be joined during glue drying. These simple tools have the advantage of not to damage the joined cardboard pieces during glue drying. They are mainly used during the construction of the wings of airplanes.</p> <p>They can be found in packages at supermarkets.</p>
	<p>SCISSORS</p> <p>The scissors are useful to cut paper, cardboard and beer cans, being the basic tool for the cardboard cut. It's easier to do certain cut jobs with this tool, than if you are using some knife. As an example, is easier to cut circular edges with the scissors. A good set of these tools can bring to you great possibilities!</p> <p>A varied of scissors types and sizes can be found in stationer's shops, sewing shops or in supermarkets. Some types of more robust and specific scissors could be found in artisan shops or in general tools stores.</p>
	<p>UTILITY BLADES OR BREAK AWAY KNIFES</p> <p>The utility blade is useful for the internal cut-off of molds holes, for precision cuts and for some pieces adjustments. This tool must be maintained very sharp, and its tip does not have to be broken.</p> <p>It can be found in stationer's shops, sewing shops or in supermarkets.</p>



	<p>PAINTBRUSHES AND COLOR PALETTE</p> <p>The paintbrushes can be acquired in a variety of shapes and sizes. They will be used for the painting, either of the entire model, or only of a part of it. It's important to use a color palette in order to allow the inks combination, in case that it is necessary to make new colors. There are sorts of all purposes color palettes to match the highest artistic dreams... It is too important to keep the brushes separated by the type of solvent used to dilute your inks. The brushes you used for inks diluted with water need to be separated from those used with oil inks, since the second ones never get totally clean of some oil...</p> <p>I recommend the use of some enamel synthetic colors, acrylic or oil colors. All of them can be found in artistic material stores. There still are acrylic inks and enamels specifically made to mimesis the original WWII colors. Those special inks can be found in specialized hobby stores.</p> <p>It is always useful to have a good solvent by hand, in order to clean the used brushes. You can use thinner or turpentine spirit for enamels and oils, or water and/or ethylic alcohol for the acrylic colors. You must consult the used product's label for use instructions.</p> <p>Good brush types are that made of Tropical Marta or with the hair of the Ears of an Ox. Some fine synthetic brushes can be found in the market, and the Marta hair made brushes that even so are considered the best ones made with natural hair, are too much expensive.</p> <p>Good brush types are that made of Tropical Marta or with the hair of the Ears of an Ox. Some fine synthetic brushes can be found in the market, and the Marta hair made brushes that even so are considered the best ones made with natural hair, are too much expensive.</p>
	<p>CALIPER</p> <p>The caliper is a measure tool useful to measure diameters, depths, thickness and length of regular or non-regular volumes. This tool can hug volumes and measure thickness or depth of orifices, what can't be done precisely with rulers. I normally use the caliper to measure distances in the fuselage of the airplane, diameters of tires and spinners.</p> <p>You may prefer steel made calipers that have a measurement rod for use in depths of holes, and are capable to maintain the measured scale position unchanged.</p> <p>The caliper can be found in general tools stores.</p>

Other Tools those can Helps, but isn't indispensable

	<p>FLAT NOSE PLIERS</p> <p>For me, the flat nose pliers are useful in one only simple function: To fold planar materials with precision, and without damaging the surface. You may use this tool to produce hinges...</p> <p>It can be found in general tools stores.</p>
	<p>SURGICAL TYPE PLIERS, WITH CONSTRAINT</p> <p>These pliers with constraint are useful tools to substitute the spring clamps and even in some cases the expensive bench vise. Certain jobs only can be made with this tool, that also act as tweezers, however, with constraint. They are also capable to exert certain pressure on the manipulated objects.</p> <p>If you own this tool, you will probable not need to use clamps, but these are still useful.</p> <p>Perhaps, this is the most difficult tool of this entire list to be found. It's even more difficult to find then a good quality small chisel set.</p> <p>You can look for then in surgical tools stores, hardware stores, or in modeling hobby specialized shops.</p>
	<p>SMALL CHISEL SETS FOR WOOD CARVING</p> <p>The small chisels are tools that I use to carve wood, or to do any job that requires a different blade type for cutting or marking surfaces.</p> <p>I suggest you to buy a good quality set of chisels, since the low quality ones get inutile in little time. The best chisels I ever see were the Chinese made ones that come inside a box, with a sharpening stone, and permit the blades exchange.</p> <p>Good small chisel sets can be found in artistic materials stores.</p>
	<p>PENKNIFE</p> <p>The penknife or any another strong knife can be used for work with wood, or other heavy works that does not requires great precision.</p> <p>It can be found in supermarkets, department stores, and sports shops.</p>


	<p>OLFA KNIFE, BISTOURY OR PRECISION HOBBY KNIFE</p> <p>This tool substitutes the utility blades in all its functions with bigger precision; however, their blades are more fragile.</p> <p>It is important to remember that the best knives are the ones that can exchange their blades, and have entire metallic handlers. Its handler can still be used to drive small drills, but I recommend doing this only with metal handlers.</p> <p>This tool can be found in specialized modeling hobby stores and general tools stores.</p>
	<p>HAMMER</p> <p>A hammer will be useful for heavy works with metal or some wood. I only used hammer to mold wire onto a two-horned anvil, at now. I don't use this method anymore...</p>
	<p>TWO-HORNED ANVIL</p> <p>The two-horned anvil can be used to mold metals, with sledge hammer or hammer. If you need not to do such a thing, you can use this tool at several other jobs. Depending on the size and its shape, the anvil can be useful as weight to unwrap cardboard, beer can and wire. Another possible use is as support for sandpapers. Depending on the shape of the anvil, it can be fixed within some sandpaper in a bench vise. Thus, you will be able to use some rotary tools to sand some tilting parts of EVA or wood against the sandpaper. The sandpaper will be firmly supported by the anvil that will work as basis. You can view a more detailed description of this Technique on the papers section.</p> <p>You do not need to buy a two-horned anvil, since any piece of iron or massive steel will fulfill this function.</p> <p>You will find this tool in general tools stores and junkyards.</p>
	<p>PINS</p> <p>The pins are very useful as tools. These small metallic pieces can be used to mark points for drawings in the cardboard (see molds technique), as soon as can be used as temporary supports for 'in production parts' of the models, or even to pierce, like a needle.</p> <p>Pins are found in bazaars, supermarkets or stationery stores.</p>



	<p>NAILS</p> <p>As tools, the nails can be used as moulds to mold beer can. As tools, I never used them in other way. As work material, at other hand, they're useful to produce axles.</p> <p>You can look for nails in home improvement stores.</p>
	<p>HACKSAW</p> <p>You will only use this tool when you're working with wood, or metals that cannot be cut with pliers. Its use is very common in 'aeromodelling', but in alternative modeling, its use is very restricted to bigger models.</p> <p>You can look for this tool in general tools stores or in specialized modeling hobby shops.</p>
	<p>HOT GLUE GUN</p> <p>This tool allows you to glue diverse surfaces one with another as soon as to fulfill holes on the model's surfaces or to reinforce some fragile model's parts. To sand hot glue strengthened model's pieces normally isn't so easy as sand other surfaces, as soon as it can't be cut-off easily. The use of this glue, however, confers great resistance to the hollow parts that need to be filled-in in order to support more weight.</p> <p>We can find these tools into two sizes, in artistic materials stores.</p>
	<p>WELD IRON</p> <p>This tool isn't so much useful to the alternative modeling at this moment, but its capacity of becoming heat is potentially useful in the manufacture of moulds for vacuum form. In other ways, I never get good results trying to solder metal pieces to work with.</p> <p>Available at electronic materials stores.</p>
	<p>FILE HANDLERS, RASPS AND BASTARDS</p> <p>A rasp is a useful tool when you are working with metals. It's used to give finishing to them. At least one rasp, or gridding stone (Refer to Dremel styled accessories) must be available when you are working with metals. The rasp represents a total controlled and easier to clean alternative to the gridding stones.</p> <p>You will find rasps and bastards at diverse sizes and models, in the general tools shops.</p>




	<p>SANDPAPER</p> <p>The sandpapers are available in some different textures, and shapes. To possess a good supply of fine sandpapers is very important, since is with them who you will do most of the aircraft's finishing jobs. They are especially useful to sand acrylic masses, and to correct the shape of the alternative models pieces. For the manufacture of tires or to make spinners this tool is almost indispensable.</p> <p>You will find sandpapers in lumber stores or in home improvement shops.</p>
	<p>NAIL SANDPAPER</p> <p>To give a support to the sandpaper can facilitate the sand work, especially when you need to sand difficult to reach places. The nail sandpapers are a ready and cheap commercial option for this function. You will be able, however, to glue sandpapers in other types of support, if these ones may better serve to some specific work!</p> <p>The nail sandpapers are available in bazaars, cosmetics store and at supermarkets...</p>




There still are other very useful tools around there, but the needed investment to own such tools are at most times too expensive. Following, there are a list of these tools, its accessories and some considerations about them:



Tools That Can Help, But Have High Cost to buy

	<p>AEROGRAPH</p> <p>There are some types of aerographs in the tools market... To carry through certain works, you will need to use external mixture aerographs, but for other jobs, you will need to use internal mixture aerographs. Moreover, there are some devices that apply a little amount of ink to allow fine details, while others are coarser for nature. I suggest you to think a lot before trying this adventure to paint with aerographs. Normally it is a very expensive hobby! It can be more expensive than a good air compressor, and remember that in order to make a good use of the aerograph you it will need to have a good compressor too. Moreover, the use of a drying air filter is recommendable to prevent problems in the air spray. Another inconvenience of this device is that generally one model of aerograph does not allow great flexibility of their use. You may be prevented who you will need to buy more than one device, if you want a more professional work. Although, if you knows how to use the device, you can produce incredible good art with it... Finally, knows that certain painting patterns can only be made with spray painting. Also, the investment in this tool will represent an economy at long time, when compared with ink spray cans. The details level you can reach with certain types of internal mixture aerographs can justify the heavy investment that is necessary to buy this tool. It will only be true, of course, if you gotten passionate by the art of modeling!</p> <p>You may look for aerographs in good artistic material stores, in specialized modeling hobby shops, and at some times, it will be possible to find them for sale in general tools stores. Before you chose your model, see if it has repair pieces for sale in your region...</p>
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	<p>AIR COMPRESSOR</p> <p>If I said that bench vises were expensive, now I'm saying that the investment on an air compressor isn't for any one people! An air compressor costs very expensive, especially when you consider that it only will be useful, if you also own at least one painting pistol, or another type of aerograph. Moreover, for fine painting, the purchase of an output air filter is very important. The cost of a good equipment can reach more than R\$1000,00 in Brazil.</p> <p>This equipment is useful to clean with air spray and to painting too. Despite of this, to invest in an air compressor, normally you will need to use it in other jobs to justify the cost. You can use it to inflate car tires, jet-sand glasses or to work with some pneumatic tool.</p> <p>There are some types and sizes of air compressors out there, but the best ones are these with an air reservoir. These air compressors must, however, be used with care because the obstruction of the security valves or some damages in the air reservoir can cause their disruption, expelling at the same time air and splinters in great speeds. The misuse of the equipment can cause a strong explosion, that can even though be fatal, depending on the luck of the user, and the size / pressure of the reservoir.</p> <p>Good air compressors can be found in general tools stores.</p>
	<p>BENCH VISE</p> <p>The bench vise is generally the best tool available to hold the drying glued parts of a model that needs to be glued under pressure. This is also a good support for painting, or to tilt wooden parts. This tool can be used within rasps, sandpapers, rotary tools, and other possibilities, holding your 'in working' piece in such a way you get great control over your work. The great advantage of this tool is the provided stability and easiness to reach the object it's holding.</p> <p>This is an expensive tool, especially when its size is great, but the investment in one bench vise of average size, between numbers 1, 2 or 3, will compensate their cost. The investment in bench vises of small size is also highly recommendable for the use with small tasks. They are available in diverse sizes, since hobby miniature bench vises to heavy weighed equipments.</p> <p>See that the use of a bench vise requires a firm workbench where they can be screwed or fixed.</p> <p>This equipment can be found in good general tools stores or in good department stores.</p>


	<p>AUNGER OR WIMBLE OR DRILL MACHINE</p> <p>Useful tool in the work with wood and beer can, when it is used to open holes with drills, to sandpaper, or in set with the cup shaped saw blades. This isn't so much expensive tool. You better choose, therefore, a good manufacturer, since you may not want to live in the support centers, or lose your investment.</p> <p>It can be found in general tools stores, supermarkets, InterNet...</p>
	<p>DREMEL STYLED MULTI SPEED ROTARY TOOL</p> <p>This is an expensive investment, of the same sum of a wimble, but the Dremel like tool was especially drawn for small jobs, normally rotating at very high speeds. I prefer to use the dremel rotary tool to the wimble for all the small works. If the available accessory is greater them one suitable to the tool, however, is better to use the wimble, that provides more torque. Moreover, it is very common to have a wimble in our houses, and the Dremel tool normally represents an extra investment. In case you do not own one of these two tools, I suggest you to buy the Dremel styled tool for your use in alternative modeling, otherwise, use your old wimble.</p> <p>There are almost an infinity number of useful accessories for use with the wimble or with the dremel tool... Some of them will be contemplated beyond this point:</p> <p>You can find this equipment in general tools stores, on the InterNet or in some modeling hobby specialized shops. Their accessories are more easily found in the InterNet.</p>
	<p>DRILLS</p> <p>It will be indispensable to use drills when you are working with wood and/or beer can. A set of fine drills allows you to produce joints, to fix parts of the model one within other, or to perforate cannons, and some other uses. Its basic use is to pierce (obvious). They can be handled by hand, or by some rotary tool, depending on the necessary job.</p> <p>You can find drills in screws stores and tools stores.</p>

	<p>CUTTER BITS AND ENGRAVING CUTTER BITS</p> <p>The engraving cutter bits are drawn for looping and engraving solid materials. They are available in varied models, each one drawn to achieve a specific final effect on the engraved material. They are excellent tools to recover damaged models, allowing careful material removal from the damaged areas. They are also extremely useful in the work with beer can and wood.</p> <p>The cutter bits are generally found in the same places where you can find the dremel styled rotary tool, but they are more difficult to find (here in Brazil) than the rotary tool itself. The best option is to look for them in the InterNet...</p>
	<p>CUT DISKS AND POLISH WHEELS</p> <p>The cut disks will substitute the cut pliers and the hacksaw in the work with wire, although, not all uses of these other tools can be accomplished because of the little diameter of those disks...</p> <p>You must use these tools with care, since they tend to break in some sharp small pieces that fly far away in all directions. Despite of this problem, they are very useful to recover damaged models, because they facilitate the cut off work of heavy surfaces.</p> <p>The polish wheels will be used mainly for the removal of old ink on surfaces. To clean up a surface from debris, you better use brushes or air spray... It's more common to use polish wheels during recover of damaged models. You can see more details about their use here!</p> <p>You will find these tools in the same places where you finds the dremel styled rotary tool, however, it is easier to find them on the InterNet!</p>
	<p>GRIDDING STONES</p> <p>The gridding stones are ideal for heavy looping jobs with metals. They are easy to find for use with wimbles, but there are also some dremel styled accessories for sale, generally with finer shapes. I normally use them to rough-hew cardboard, EVA or glued areas in my models... To use these accessories with softer materials generally obstruct all the small holes of these stones, ruining the accessory with little time.</p> <p>You need to know that it is very difficult to clean off the stones when materials get adhered or fused to the stones, because of the friction.</p> <p>The gridding stones are easy to find. Look at screws stores and tools stores, or on the Internet.</p>

	<p>Mandrel Drum</p> <p>This is the mandrel originally used with sand bands at the dremel standards. It functions through the expansion of a rubber, arresting a sand band with the pressure formed within these two pieces. Thinking more about this principle, I use this accessory as rotary support to sand EVA against fixed sandpaper, on a bench vise. (In order to you to see references about this modeling method, see the topic on the two-horned anvil).</p> <p>You will find this accessory in the same places where you find the dremel styled rotary tool.</p>
	<p>CUP SHAPED SAW BLADE</p> <p>It's an accessory for use with a wimble. It's little useful in alternative modeling, since it can only cut circles in wood, or beer can. Moreover, it provides a few diameter options to you to choose from. The investment in this tool may not be justifiable at now.</p> <p>You will find that tool in general tools stores.</p>

IMPROVISED TOOLS

	<p>CONSTRAINTS MANDREL</p> <p>I just made this tool to shape wheels and spinners with EVA. It functions arresting EVA pieces in their salient constraints (nails or pins) located in its frontal face. I normally use this tool with my wimble or my Dremel rotary tool. You can see more details about that tool and their use here!</p> <p>Not available for sale (I never see it on any stores in Brazil)...</p>
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	<p>CUT COMPASS</p> <p>It's another tool that I have improvised, but this one I made with the help of my godfather. I use it to cut beer can and EVA. The project did not performed very well, because I wanted to cut small circles of EVA, and like any compass tool, it slides during the cut job and ruins all the work. It will occur every time any person tries to cut small circles, minors then 3cm of diameter. There are other available tools in the market to do such a job. They can be used within wimbles, like the cup shaped saw blade, but that cut compass performed in a more flexible way to the different possible cut diameter whiting you can adjust it.</p> <p>Not available for sale (I never see it on any stores in Brazil)...</p>
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When you will just buy a tool, try to look for the best quality ones, and think about your necessity of it... It's like a fever! Every time people find a cool tool in a store, they want to buy it. Proceed with caution; therefore, you can be spending money for nothing useful!

Alternatively, you can improvise some tools... I just do it every time. You can see it in the cases illustrated above...

Let your imagination reaches new limits!