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GUITAR

STARTS ON NEXT PAGE

PHOTOS AND STORY COURTESY OF GIBSON INC.

The manufacture of a guitar is more of a craft than a science, for experience developed over the years is one of the most valuable ingredients in any fine guitar. Quality results from the use of the finest materials for the purpose by craftsmen with a desire to produce only the best in workmanship, tone, design, beauty, and durability.

A tribute to Gibson quality and workmanship is the large number of their instruments manufactured forty to seventy years ago and still in use today. Many guitarists are constantly on the lookout for one of these guitars that has not been mistreated, knowing that age has improved its tonal qualities.

An important feature is the careful and thorough inspection of individual parts, sub-assemblies and completed

GUITAR HALF RIMS PERSONIFY RHYTHM

BANDSAW OPERATION



CARVING SPRUCE SOUNDING BOARD

units. Inspection is made for grain, col-

or, texture and moisture content of

woods; quality, strength, design, and appearance of parts; tensile and torsion strength of strings; tonal qualities, playing action, and appearance. More than one hundred and fifty checks and tests insure the high standards of perfection

The purchase of the finest materials; the careful storing, aging, drying, and preparation of over 200 different parts;

and the building of sub-assemblies pre-

cede the actual making of any guitar.

After the parts are made, it takes ap-

proximately 90 days to assemble, finish

and adjust a top quality guitar so that

Woods used for superior guitars in-

clude spruce, maple, poplar, and red-

wood from the United States, mahogany

and rosewood from South America, and

ebony from Ceylon and Madagascar.

The steel comes from Sweden, pearl

shell from Australia, nickel from Can-

ada, manufactured accessories from

West Germany, and other basic mate-

rials from wherever the best are avail-

Guitar with carved top and back re-

quires hundreds of operations before it

A Gibson L-5C Cutaway Acoustic

able.

it is ready to play after tuning.

necessary for a fine guitar.



is completed. Some of the major operations in making a single instrument would be as follows:

CARVED TOP

Close-grain spruce from the Pacific Northwest is purchased. The rough stock is planed and cut to length and width, stacked on skids and clamped with bars. It is then tallied and enters the kiln for a four- to twelve-week period. When it is removed it is matched and counted into pairs to be jointed and glued. Glue joints are scraped and center holes are drilled. After the stock is



SPINDLE CARVING GUITAR NECK

inspected it is planed to thickness and cut to size for carving. The carving is done on profiling machines for outside and inside contours. It is inspected for thickness and stacked on pins to be bandsawn. The edge is shaped to thickness and "F" holes are cut before hand graduating inside and outside. It is sanded smooth and the "F" holes are recut. It enters the stockroom and comes out with binding material for the "F" holes to be glued and sanded, inspected and returned to the stock room.

CARVED BACK

Curly maple is selected from the central border states and undergoes the same general operation as does the material for the top, with the exception of the "F" hole operation which is deleted. Hand graduation on both top and back is governed by specification sizes and the flexibility and density of individual units.

RIM ASSEMBLY

The material for the rim includes curly maple rim stock, mahogany head and tail blocks, flexible rim lining to strengthen rim shape and provide wider surface on which to glue top and back, and wooden rim stays to prevent rim splitting. Rim assembly operations include the cutting of rough stock, resawing it to rough thickness and drum sanding it to a finished thickness. The stock is then inspected and placed on forms that bend it to regular half rim shape. These half rims are sorted into pairs and placed in the kiln. After drying the stock is once again inspected and matched, then the ends are jointed. Head and tail blocks are marked and glued up. The rims are built up in a rim press and sized on a shaper saw in a special jig. Now stays are glued in along with a flexible lining. Rims are once more drum sanded and once more



BRACING THE SOUNDING BOARD OF A FLAT TOP GUITAR.

inspected before storing in rim assembly stockpile.

FINGERBOARD

Material includes abony, celluloid binding, mother-of-pearl inlays, and nickel-silver frets. The rough ebony is ovalled in a sticker machine, cut width per gauge, tapered in a jig, cut to length, and the ends are scrolled. It is then sawed for frets, inspected, and sent to the stock room. Ebony blanks and composite celluloid binding are issued from the stock room and routed for inlays using L-5C jig and template and are then finished to size. Corners for the inlays are hand chiseled and pearl is glued in. The inlays are sanded, inspected, shaped, scrolled, and the bindings bent to scroll. The binding is glued on. Binding for frets are sawn. The frets are then added, filed, and grooved. The outside binding is glued on, cleaned, and the fingerboard is drilled for side dots. The dots are added and the product is inspected and sent to the stock room.

BODY ASSEMBLY

This includes the rim assembly, carved top, carved back, braces and binding material. The tops and backs are bandsawn for cutaway in pattern, laid out and braced. Tops, backs, and rims are glued in forms and then bound. The rim is faced and sanded for dovetail where the neck will be attached. Excess is carved away and top edge is bound. The bottom edge is then bound and the bindings are carved down, rough sanded, sponged, and fine sanded with tops and backs. Fingerboard supports are added and dressed down to gauge. The rims are rough sanded, sponged and fine sanded. The neck is then glued to the body. The celluloid heel is dressed down and glued. The fingerboard support is cut down

NECK ASSEMBLY

The material includes three-piece curly maple neck, bound ebony fingerboard with mother-of-pearl inlays and inlaid head veneer. The necks are jointed in forms and the pegheads are reshaped. The neck is dovetailed and the pegheads are sanded. The fingerboard is glued to the neck in form and the necks are carved and belt sanded. Fingerboard nuts are glued on and necks are spindle sanded to gauge for size and shape. The necks are then sent to the fitter to be assembled with the body.

FINISHING ASSEMBLY

Head veneer for truss rod cover is cut out and the fingerboard and neck are masked. The pegheads are stained and filled The back rim, and neck are stained and the tops are scuffed along with the peghead. The neck is filled and the first coat of finish is applied. Sunbursts on top, back, neck, and rim are shaded and dry sanded. Bindings and inlays are scraped. The tape is removed from the "F" holes and they are scraped and bound. Three more coats of finish are applied. The top and back are buzzed, water sanded, and a mist coat is sprayed. Then it is buffed, cleaned, and touched up where necessary. Fingerboard support is stained and painted, inspected, cleaned, sanded, and oiled. Machine heads and bushings are attached along with the tailpiece. The bridge base is fitted to the top, notched,

and the strings are assembled. The bridge is cut to correct playing size and the frets are beveled, leveled and rounded. The instrument is tuned to pitch and metal parts are added. There is another cleaning and polishing be-



CLAMPING BY TAPE IVOROID BINDING ON GUITAR

fore a final inspection, then the instrument is sent to finished instrument stock.

The above covers a partial list of the numerous operations required to complete a Gibson. Between operations, there are various periods of waiting to allow for glue drying, finish drying and adjustments to clamping pressures, string tensions and the like. Machine heads and cases are purchased from manufacturers who specialize in these items and make them to Gibson specifications. Individual parts like the bridge, tailpiece, strings, and other miscellaneous items require the same careful selection of raw materials, closely supervised operations and rigid inspection.

FINAL CHECK AND ARTCRAFTING



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