

National Rodbuilding Show

Charlotte, N.C. - February 25 & 26, 2006

Workshop - Flocking

12:00 Noon Saturday & Sunday

Most Fishing Rods Are Built Using:



And They Soon Look Like



Document \$ 3.00 BW

Available Charlotte Only

This Workshop Presents Information The Custom Builder Can Use To Build and Market Custom Rods With Upgraded Grips Using Space Age Technology!



Pretty as a Rose - Tough as a Boot!

ONLY place where custom rod builders can compare products and application techniques.

Flocking Demonstrations

Canister - Volunteer Custom Rod Builder

Spray - Bill Stevens & Italo Busi

Electrostatic - Ralph O'Quinn

Acknowledgements:

Tom Kirkman, Ralph O'Quinn, Italo Busi & Jill Goldman Editing, Photography and Technical Support.

**Frantz Buchot - Translations
French, German, Italian, Spanish**

Bill Stevens Presenter

" GETTING FLOCKED "

General:

The Workshop's participants will discuss, critique, and demonstrate the "state of the art" of materials, procedures and basic marketing principles related to nylon fiber flocking of natural cork fishing rod grips.

The flocked cork grip market for custom builders is in the product development stage. Advances are anticipated in products and procedures as the market quickly expands.

The contents of this Workshop will provide a basis to aid custom builders in the evaluation of various methods currently employed. Information is also included to assist in marketing the flock grip concept to customers.

Flocking of cork grip sections was introduced to the custom rod building community through Tom Kirkman's demonstration at Charlotte, in 2005, and articles in Rodmaker Magazine. Custom rod builders have successfully used flocking of natural cork to enhance functionality, longevity and beauty of custom rods that stand out in this unique market.

Many rod builders performed flocking operations utilizing limited information that resulted, in some cases, with less than ideal results.

At the conclusion of the Demonstrations, a Q&A Period will be utilized to document comments from all participants. A summary of information will be submitted to Rodmaker Magazine for use in a later publication.

You, as a rod builder, are urged to take an active role in the Workshop and subsequent written follow-ups.

If you have additional comments and wish to have them included in the Workshop Final Report please forward to:

Email: wstevfishn@aol.com

Hopefully, you will consider this hour, at the Charlotte National Rod Show - 2006, time well spent!

Marketing:

Custom rod builders are constantly on the search for materials, techniques and concepts that differentiate their rods from mass-produced commercial rods. In a market where competitive edge can be quite important, a well-done flocked grip is a feature that will allow your custom rods to stand several cuts above any production rods.

Seldom does a new feature make a market entrance that enhances the functionality and appeal of a product that is instantly accepted by the general public.

A nylon-flocked grip with a natural cork substrate is a remarkable upgrade, It Is A Better Mouse Trap! It is a better rod grip! Custom builders should capitalize on this opportunity

If you are a builder who builds custom rods for customers, self or family and friends you are urged to evaluate the methods of flocking natural cork for use on your next custom rod. If the proper technique is used, flocking is cost effective, highly functional, long lasting, rewarding and just plain fun!

Principles discussed may apply to other surfaces such as EVA, Hypalon, graphite, wood, burl and specialty lightweight tubular materials.

Flocked Grips - What Are They?

A natural cork flocked grip properly prepared, sealed, coated with adhesive and covered with colored nylon fibers designed for use on high-end custom rods is the subject of this Workshop.

Natural cork used on most fishing rods contains cavities that are typically filled with a "mud like" product. The filler has no strength characteristics and is added for cosmetic purposes. These fillers quickly loosen and fall out, resulting in rod grips that are deeply pitted, hard on the hands, difficult to keep clean and unsightly.

Nylon flock, when used as a surface treatment, provides toughness, warmth and plush feeling that natural cork or other materials with an overlying treatment, (leather, cord wrapping, varnish, fabric wrapping, felt, Cork Seal or True Oil) cannot duplicate with the same ease and investment of time and money.

A new custom graphite fishing rod is constructed with a blank and components using "space age technology". Nylon flock applied to natural cork elevates the quality of the grip to match the high standards of other available components.

Nylon flock is used as a reinforcement fiber in the molding of plastics to improve strength, control cracking of plastics during manufacture and added to paper during processing to improve tear strength. Nylon flock has even been used as a flow control additive for an epoxy adhesive use in the fuel system of the SR-71 Blackbird, the highest flying, fastest jet airplane in history.

A natural cork grip upgraded with nylon flock belongs on your customer's next high performance fishing rod.

Advantages of Flocked Grips

Comfortable To Hold - Warm Feeling

Extremely Tough - Years of Service

Resistance To Detergent - Easy To Clean

Wide Range of Color and Shape

UV Resistant No Fading Of Color With Age

Firm Secure Grip - Not Slick When Wet or Slimed

Non Porous - Easily Sanitized

General Technical Information:

The flock used for rod building is a precision cut small diameter nylon fiber. The diameter of the fiber is described by the term denier, which is defined as the weight in grams of a single filament 9000 meters long. Cut length typically ranges

between .015" (0.38mm) and 0.5" (12.7mm). The flock is made from continuous filament, called tow, which is cut to the length required.

The cut flock is dyed to the proper color. A final chemical treatment is applied to give the flock flow characteristics, electrostatic properties and moisture retention as required.

All Donjer colors are not available in nylon fibers. Nylon is far superior in color fastness, toughness and overall wear ability to other fibers. How tough - one of the primary uses of nylon flock is on floor mats in high traffic areas where durability is of prime importance.

When placing orders with Donjer, identify yourself as a rodbuilder and specifically ask for nylon fibers and specify fiber length required for your application technique.

How Flock Is Applied?

The three primary application techniques are hand powered canister spraying, compressed air spraying and the electrostatic process.

The hand operated canister and compressed air spray methods are the easiest for most rodbuilders to economically use.



Fig. 01
Donjer Mini Flock Canister

Tom Kirkman, working with a simple flocking canister, designed for custom rod builders, tested and determined that 0.05 mm fiber length was the most efficient when using hand operated spray equipment.

When using the spray techniques, flock fiber density on the substrate is somewhat less than the density from the electrostatic process. The use of the electrostatic method generally will produce a denser coating with more vertical orientation of the fibers.

A well-done cork piece completed with the canister or compressed air spraying technique can compare favorably with a cork piece flocked with the electrostatic process.



Fig: 02 A
Electrostatic Process
Trondak U-40

Most feel that shorter fibers produce a more desirable surface for fishing rod application even when using the electrostatic process.



Fig 02 B
Wine Nylon Flock Compressed Air Spray

Flocked cork samples of each process will be passed around the room for direct evaluation and comparison.

Take a close look. These pieces are typical of what results can be expected with each application process.

What Adhesive Is Used?

The Donjer alkyd adhesive system developed for rod builders is receptive to the flock and forms a tight hold on the nylon fiber. It adheres tightly to the sealed cork surface, when applied consistently and cured for the required period of time.

This special adhesive is formulated to provide the characteristics needed for behavior and performance required on fishing rods for heavy use. This adhesive system is not a simple paint system and at present there are no known and proven substitutes.

As the use of the flocking process increases, it is anticipated that the development of advanced sealing and adhesive systems will quickly follow.

Material Cost & Estimated Coverage:

The Donjer Products, tested by Tom Kirkman, can be used to flock grips in a very cost effective manner. As a minimum, a builder will be required to purchase a 3 ounce bag of nylon flock, application canister, 8 oz can of matching color adhesive and gather some low cost expendables for application and containment.

Using the application techniques and containment principles demonstrated in this Workshop, it will be possible to flock approximately 100 inches of one inch cork with the 3 ounce bag of nylon flock and the 8 oz can of adhesive. This will be enough for about eight to ten casting rods.

The work and containment practices are the factors that determine the actual cost. It is estimated, that less than two dollars per rod will cover the cost of flocking materials.

Electrostatic flocking, requiring a higher initial investment, can also be cost effective if the number of pieces flocked supports the up front cost of the specialty equipment.

Contract flocking services using the electrostatic process for individual cork pieces are available. The logistics of doing individual pieces on a customized basis will require adequate timing to allow for communication, [sizing](#), [preparation](#), [processing](#) and [shipping](#).

Trondak U-40 is offering customized flocking services using the electrostatic process. Ralph O'Quinn is present and you are urged to meet with him while you are in Charlotte.

Colors and Shading:

The most widely accepted colors of nylon flock for the use on fishing rods are those that do not show dirt. Charcoal to black is ideal. Nylon flocking fibers can be blended, i.e., white and black, to achieve the desired shade. Several colors of the nylon flock are available. Trim rings of various types and colors should be considered for use at junction points for ease of fit up.

Italo Busi, Rome Italy, is presently developing processes that will permit the use of multiple colors of flock on the same piece. A rather unique shading effect can be achieved by "marbling" different colors of adhesive and spraying with color coordinated flock.

Material Comments:

1. There is enough flock in a 3 oz bag of Donjer nylon fibers to fill a manual spray canister to operating level several times without any reclamation.

2. Flocking fibers are sensitive to humidity conditions. Ideally, the flocking area should have a relative humidity of 60% @ 68F. If the bag of flock is opened in an area where the humidity is over 65% the fibers may tend to stick together and flow poorly.

If you are spraying with canister or compressed air the Donjer bag of flock should be opened carefully and the contents emptied into a one-gallon Zip Lock Bag. If the product clumps it should be "fluffed" prior to placement in the spraying device for application. Store excess fiber in dry location.

3. There is enough fiber in a 3 oz bag of nylon to fill the air assisted spray can, to operating level, two times without any reclamation.

4. It will be cost effective to purchase an extra manual canister or spray can to preload before the start of a flocking process on multiple pieces of cork to insure continuity of work.

5. Verify fiber type and cut length of fiber upon receipt. Nylon fibers will have a small nylon tag inside the sealed bag of flock.

6. The 8 oz can of matching color adhesive will cover more cork than can be coated with the 3 oz fiber package. Keep cans well sealed and stored inside.

Work Plan:

Successfully flocking a piece of natural cork, although not expensive nor requiring a lot of special tools, requires thorough researching, planning, attention to detail and just plain common good sense.

Speed of performing tasks is not a requirement. The procedures demonstrated in this Workshop have proven to yield successful results in a cost effective and repeatable manner.

This document can be used as a guide for a builder who plans on flocking for the first time. It can also be used to improve a present users process to improve product quality.

Selection of Cork:

Natural cork is a naturally occurring product that has a high porosity, voids, and high permeability, percentage of voids that are connected. These factors play an important role in the success of the final work product.

Cork should have a surface that is free of man made surface films. These unwanted layers may be added at the factory to improve the cosmetic appearance of the cork. These surface films may prove detrimental to the strength of the bond between the sealed cork substrate and adhesive. A

poor bond could result in premature peeling of the adhesive and flock.

Properly prepared cork sections, effectively sealed, dried for 12 hours, coated with a proper thickness of Donjer adhesive coat and flocked properly will result in a flocked surface that meets expectations.

Preparation of Cork:

The following preparation is advised for each piece of cork to be sealed, coated with adhesive and flocked.

1. Select cork piece with no altered or "bleached" type surface film. Premium grade cork is not a requirement. If surface coating is present, remove with 220 grit sandpaper.
2. Shape as desired. Ream cork ID to dimensions to fit blank. Verify ends correct for fit-up, butt cap, etc. Slightly radius all sharp 90 degree edges with sand paper.
3. Fill voids with a mixture of cork dust and non-solvent containing adhesive, such as Rod Bond. Using a dental pick or pin verify that all large pieces of filler in the cork substrate are firmly in place. Remove the loose filler and refill. Allow filler repair to dry and reshape.
4. Fit up to joining pieces, reel seats, trim rings, winding checks, etc, to verify correct outside diameter - the cork piece should be only slightly less than matching edges. 1/64" or less is adequate.
5. Simulate the installation process of the cork on the rod blank to be utilized. Verify fit up.

See Installation Section Page 9.

6. Sand all surfaces to be flocked with 220-grit sand paper.
7. Place cork piece on a loose fitting wooden dowel or scrap blank piece. Use masking tape to create a shoulder that will firmly hold the piece in place on the dowel that has a gap on the ends.

The loose fit and the gap will prevent sticking when the piece is removed from the dowel.



Fig 03
Sealed Pieces Curing

8. Stop and think - Do plans include doing multiples of the same type? It may be more cost effective to process more pieces at a time.

The prep and sealing takes more time than the actual flocking. Sizing and the subsequent sealing processes can be done on a number of pieces thereby reducing overall time requirement.

Cork pieces can be prepared and sealed ahead of time in order to have them ready to be adhesive coated and flocked upon customer request.

Sealing Cork:

Apply coat of acrylic based color preserver or cork sealer that will dry in 12 hours. Cover all surfaces and ends.

Store pieces of prepared and sealed cork in dry location until time for application of adhesive.

* Note Optional Process Page 9

Adhesive Application:

The Donjer alkyl adhesive is best applied with a foam applicator. A continuous flow coat is flowed onto the cork surface with a constant stroke. An approximate coat thickness of 5 mils is desired. Insure the coat is not so heavy that "sagging" will occur.

Care should be taken to insure a continuous coat of adhesive around the entire circumference of the piece. Use care when attempting to level the adhesive coat with the applicator. This will insure against excessive localized thinning of adhesive thickness.

A simple rotating system can be used to aid in adhesive coat leveling. Periodic turning by hand is acceptable to prevent adhesive slump.

Adhesive can be "messy stuff", if carelessly handled.

It should be only three to four minutes from the start of the adhesive application to the start of flock fiber application. Be thorough, and do not get in a hurry.

If the sealed piece has been stored or in a drying box it is advisable to lightly scuff the surface lightly with a fine Scotch Brite pad immediately prior to applying adhesive.

Plan For Flocking:

The work plan should include all details from adhesive coating to the final storage during the curing period.

Be thorough with plans. Verify all things are identified and available before you start the process.

The actual flocking will only take a minute or so and should be done within four to five minutes of the application of adhesive.

Everything should be in its proper place before applying the adhesive.

Careful thought should be given to the handling and storage of the dowels containing freshly flocked cork pieces. They should be placed in a location that will not allow them to be disturbed until they are fully cured, approximately 5 days.

Containment:

Flocking can be effectively done with a simple containment system. The system should be designed to recover excess flock, protect the work area and provide a proper path for targeting flock to the work piece.

Effective containment systems can be anything from a simple cardboard box, with a plastic liner, to a more complex rotating system built from readily available materials.

The box with plastic liner in Fig 04 A is being used with the Battery Powered Electrostatic Wand in the Trondak facility.



Fig 04 A
Trondak Electrostatic Wand

The containment system in Fig 04 B includes a rotating device for adhesive leveling and flock distribution.



Fig 04 A
Containment System
Compressed Air Spraying

List of Items:



The following items will be used in the Workshop.

All items should be available and placed for easy access.

Empty cardboard boxes 24 pack Coke cases
Four-Inch Soft Bristle Paint Brush Flock
Containment Box
Optional Rotator
Razor Blade
Foam Paint Applicator For Adhesive
Small Disposable Brush
Plastic Liner Bags For Containment Box
Aluminum Foil
Cork Bushings for Dowel Ends
Screw Driver Opening Adhesive
Hammer Closing Adhesive
Vacuum or Compressed Air Clean Up
Zip Lock Bags
Mineral Spirits Hand Cleaner
Particle Mask
Cell Phone Off
Clean Rags
Scissors
Large Plastic Funnel
Flock
Adhesive
Application Device
Compressed Air @ 15 psig
Thin Rubber Gloves Optional

Where?

Flocking should be done in a properly protected well-lighted area. Work outside if you are using a

spray technique and weather permits. Allow room for unimpeded movement and place all required items in an orderly, easily visible position.

Insure that items will not be knocked over or fall.

Verify availability of electricity and compressed air to support automated methods optional.

When?

If working outside, flocking operations should be done early in the morning or late in the evening when air currents are at a minimum. Do not start work before the dew or moisture condensation has evaporated from all surfaces. These conditions will permit maximum recovery of excess flock.

Learn to work at a methodical pace without hurrying. Think! This is one of those things that you will want to do RIGHT the first time!

Tips:

1. The first time you perform flocking operations it is advisable to set up your containment and operate your application device in a mock mode.

This will fluff flock and application to a cork piece will look better.

Fill the application apparatus to operating level and test spray a complete charge of flock. All the flock used during this test can easily be recovered.

2. Both the canister and spray can are held at an angle of approximately 45 degrees down. The impingement angle of the flock exiting the chamber will be 90 degrees to the target. This position will minimize plugging and clumping of the spray device and give an improved appearance to the flock surface.

3. An optimum distance from the work piece will be kept constant. The regulator setting on the air supply determines the distance from the target with the spraying technique. Six to eight inches is normally used when the regulator is set between 12 and 15 psig.

4. The air regulator will be set at 15 psig on the Donjer Spray Assembly.
5. Excess flock will be applied.

It Is Impossible To Spray Too Much!

6. If a large clump exits the spray nozzle and attaches to the work piece lightly bump wooden dowel holding the cork piece to dislodge.
7. The black rubber cover to the spray can outlet will be removed prior to hooking up air hose with a quick connect fitting. This will prevent possible over pressure and damage to can

Do not hit trigger accidentally!

8. Optional. Work pieces will be rotated at six rpm prior to flocking for leveling of adhesive and for five minutes after flocking.
9. The alkyd adhesive requires a minimum of forty-eight hours to take initial set. Do not pick at the ends during this period. At the end of the initial drying period carefully brush off excess flock with a soft bristled paintbrush.
10. Wear painters mask while spraying flock.
11. Reclaim all excess flock. Gather excess in zip lock bags and seal.
12. The viscosity of the adhesive may be quite thin and runny at temperatures above 75 degrees. Consider placing the adhesive in a pan of ice water to chill and thicken the adhesive a few minutes before application.
13. If a streak of light flock coverage appears on the piece during the drying process consider placing the piece in rotation during application of the adhesive and the flock. Excess adhesive will cause coat thickening on bottom of the piece while static during the initial set.
14. Store flocked cork piece on rack in position where it will not be bumped with and damaged until the adhesive properly cures and develops

maximum strength. This curing should take approximately five days at 70 degrees F.

15. Adhesive should be thoroughly stirred prior to use. Seal cans thoroughly when closing.
16. A minimum curing period of five days is advised prior to installation of the flocked piece on a rod blank.
17. Solve this puzzle. You started with 1 bag full of flock - did 5 rods - now you have two bags. Wassup!

Installation Flocked Sections:

When the flocked cork piece is moved into position, excess Rod Bond, will be wiped from the surface of the blank and, if allowed, will transfer to the flocked surface. This should be prevented.

Any solvent used to clean the excess Rod Bond, from flocked edges, may cause a localized release of nylon fibers. When positioning a flocked piece be careful to remove excess Rod Bond before it is transferred to the exposed flocked surface. The use of automotive type touch up sticks with a tiny brush pads are ideal for this clean up.

A matching surface on the cork piece should allow a winding check to fit flush over the end of the joint between the blank and flocked piece.

The careful sizing of cork sections, use of winding checks, trim bands and use of minimum amounts of Rod Bond will help in minimizing the effort required to achieve a nice clean fit up.

Optional Sealing Process:

As the number of flock pieces through the Gon Fishn Shop increased, several problems were noted which were associated with preformed cork grips from different suppliers.

The following circumstances required a modified preparation and sealing technique.

"Bleached White Grade AAAA" preformed corks sections, from a major vendor, were sealed and

flocked. After a week of drying the adhesive remained tacky and could be easily peeled from the cork substrate.

Some preformed cork section may remain "tacky" if the Donjer adhesive is applied over a coat of sealer. The carrier base for the adhesive is mineral spirits. Mineral spirits will soften fillers upon contact.

Ralph O'Quinn is present and will comment on proper cork sealing and adhesive application when dealing with the present commercially available products.



Fig 05
Optional Sealing Process

If cork supply is such that a revised procedure is necessary to achieve the desired results the following procedure has proven to be effective. Time and workflow plan will require several days for sealing and proper curing.

1. Sand the entire surface of the preformed cork piece with a 220-mesh sand paper. The purpose is to remove the top layer cosmetic enhancer. Remove all loose sanding dust. Vacuum off any loose excess filler or cork dust.

Do not wipe or apply any alcohol, solvent or other liquid cleaner.

2. Size, shape, round edges, fill voids, with Rod Bond and cork dust. Simulate fit up.

3. Apply a coat of acrylic color preserver and dry for 12 hours.

4. Apply a thin first coat of color contrasting Donjer adhesive. Allow 72 hours drying time. Verify surface hard and glossy. Store until ready for final coat of adhesive and flocking.

4. Lightly scuff surface with fine Scotch Brite pad immediately prior to application of final coat of adhesive at time of flocking

Flocking Time:

The Fur Will Fly in the Conference Room.

Pieces of sealed cork will be flocked with a manual canister, compressed air spray applicator and the electrostatic process.

The flocking operation lasts only a few seconds and groups will be asked to quickly walk by the demonstration while the flocking is being performed. All in attendance will have the opportunity to observe and someone will be selected at random to perform the flocking of a selected piece of sealed cork.

At the conclusion of the flocking demo please take your seats and for the interactive Q & A Session.



**Flock and Photo:
Italo Busi
Rome, Italy**