WINDSHIELD INSTALLATION AND HANDLING INSTRUCTIONS

Depending on your aircraft make and model, the windows which you purchase may require trimming and/or drilling. The following directions will give you tips on the proper procedures for accomplishing this. Check our list of installation supplies for acrylic drill bits, cleaners, finish restorers, tapes and sealants. **WE HIGHLY RECOMMEND THE PURCHASE OF OUR ACRYLIC DRILL BITS WHEN HOLES ARE TO BE DRILLED IN THE ACRYLIC.**

WINDSHIELD TRIM VARIATION: We can guarantee fit on most of our windshields, but many aircraft manufacturers allowed variations to exist in the original trim of the windshields. We therefore manufacture and trim the replacement windshields for these aircraft slightly oversize to allow trimming for each individual aircraft. These windshields may require trimming or grinding to fit upon installation. **NOTE: As a service to our customers we will accurately trim any windshield or window which we manufacture to the exact size of your original window at no additional charge. Please notify us in advance of your shipping the original window or template to us. All transportation charges will be the responsibility of the customer.**

HANDLING: It is very important to keep the windshield well supported at all times. Do not allow a strain to be put on the windshield during the cutting or grinding operations. Warm temperatures are not required during these operations; however, acrylic will take much more abuse at 80 degrees than at 30 degrees. **DO NOT STORE ANY WINDOW OUTDOORS WHILE THE PROTECTIVE COVERING IS STILL ON THE WINDOW. THE COVERING WILL BECOME VERY DIFFICULT, IF NOT IMPOSSIBLE, TO REMOVE WITHOUT DAMAGING THE WINDOW.**

PREPARATION FOR INSTALLATION: After inspection of the window, trim the protective covering to expose enough of the edge of the window to allow for fitting including the portions going into channels and under fairings. The remaining protective covering should be left on the window to protect it until fitting has been completed. Residue left behind by the "Spraylat" protective coating may be removed by soaking the area with isopropyl alcohol and rubbing with an alcohol soaked soft flannel cloth. Residue left behind by the adhesive backed paper covering can also be removed by the above method. If, however, the paper covering has been stored on the window for an extended period of time, you will have to soak the paper with kerosene and keep it wet for several hours. You will then be able to remove the paper backing, but the adhesive will remain. This may be removed by using a mixture of equal parts of kerosene and isopropyl alcohol. Soak a soft flannel cloth with this mixture and rub the window with the cloth. The window should be cleaned after this procedure with a dish washing liquid and plenty of water. **REMOVE THE REMAINING PROTECTIVE COATING AND INSPECT THE WINDSHIELD BEFORE FINAL INSTALLATION. SEE WARRANTY.**

MARKING FOR TRIM - PAPER PATTERN: The windshield may be marked with a china marking grease pencil, a felt tip marker, or masking tape. A fast and accurate method for trimming can be accomplished through the use of a paper pattern made by laying a piece of craft paper over the outside of the old original windshield and trimming the paper exactly to size. The paper will lay flat on windshields of simple curvature and can be taped in position. The windshield outline can then be traced onto the paper with a marker. This pattern can then be cut out, properly aligned over the new windshield and the new windshield marked to size. On windshields of compound curvature the paper should be pulled tight across the outside center of the original windshield and taped at this point. At a 90-degree angle to this the paper should again be pulled tight and taped. The loose areas between the tape should be cut with a razor knife and overlapped with enough cuts to allow the paper to follow the curvature of the windshield. Once this is accomplished, masking tape should be used over all the cuts to hold them in place. An outline of the original may now be made and cut to size. This pattern may then be removed from the original windshield, aligned properly on the new windshield, taped in position and traced. When tracing these patterns on the new windshield allowances should be made for areas which were short on the original installation. If mailing patterns to us be sure to mark the pattern as to left side, right side, and outside.

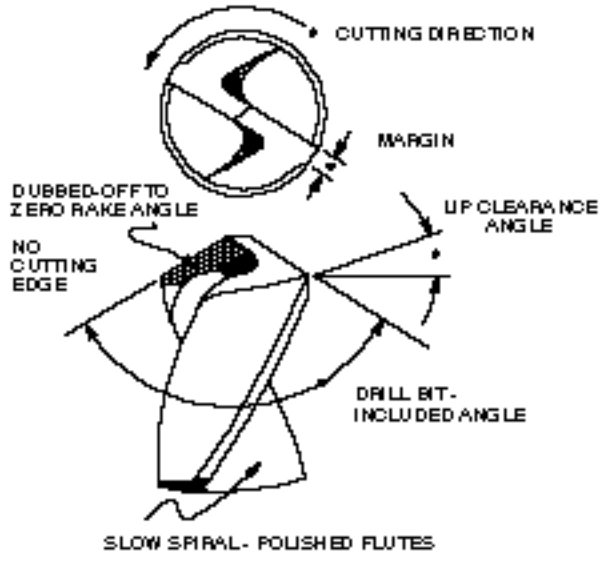
MARKING FOR TRIM - CUT AND FIT: If the original windshield is not in condition to make a pattern then you must cut the new windshield to fit. Remove the wing and cowl fairings and place the new windshield in position allowing the top and sides to hang over. Mark and trim the bottom first. Make sure that the windshield is aligned at the wing roots or that trimming will bring about alignment at the wing roots. After trimming and fitting the bottom, the sides and top will not be difficult to fit. Care should be taken to fit the windshield in place using small cuts rather than one large cut. Remember, you can always trim a little more, but once cut you can never add to it.

MARKING FOR TRIM - OVERLAY: Place the new windshield over the outside of the old windshield and trace a trim line. This will give an oversize rough trim. This method is not recommended for any Cessna windshield or any other windshield where a tight fit between the windshields cannot be achieved.

WINDSHIELD TRIMMING: Trimming is best done with a band saw using a 1/4" or 3/8" wide raker blade with 14 or more teeth per inch. Mask the band saw table to protect the windshield from scratches. Support the windshield during the cutting operation and do not allow the weight of the windshield to rest on the edge being cut away. After cutting, the edges should be sanded with a belt sander to remove all saw marks. Satisfactory results may also be had by using a 7" or 9" disc sander with a coarse 40 to 80 grit sanding disc. This will remove material quite rapidly with only slight pressure. A belt sander may be used with similar results. For best results the edges should be smoothed and rounded with fine sandpaper. This can be sanded by hand, with a rotary drum sander, or a file may be used in place of sanding. Smoothing the edges will lessen the tendency towards edge cracking or breakage. It will also extend the service life of the windshield.

NOT RECOMMENDED: Trimming with a jig saw, saber saw, or a hand saw is not advisable. If hand sawing is absolutely necessary, a coping saw with a bone cutting blade with 30 teeth per inch may be used. Extreme care must be used to avoid the blade hanging up and starting a crack. We recommend that the blade be inserted in the saw backward so that the blade cuts when it is drawn towards you. Do not allow the edges of the acrylic to pinch and bind the blade

DRILLING WINDSHIELDS: Do not use a standard metal or wood cutting bit to drill acrylic. This type of bit must be resharpened for acrylic. Take this bit and square off the cutting edge as per the drawing. The drill bit sharpened in this way will scrape a clean hole through the acrylic with no tendency to dig in or grab. Sharpen your drill bit as shown or purchase one of our special acrylic drill bits. The small price you pay for the correct drill bit will pay you dividends a hundredfold by drilling smooth clean holes. Practice drilling on your old windshield or a piece of scrap acrylic before drilling your new windshield. Use a high speed with very light pressure when drilling. Holes should be drilled oversize to allow for expansion and contraction of the acrylic; Example: Drill a 3/16" hole for a 1/8" screw. Do not over-tighten screws. Screws should be snug only. Over-tightening will cause cracks around the holes. **STANDARD WOOD OR METAL BITS WILL CAUSE BINDING AS IT BREAKS THROUGH THE OPPOSITE SIDE OF THE ACRYLIC. THIS WILL CAUSE SMALL CHIPS, FRACTURES, CRACKS, OR CAUSE THE WINDOW TO BREAK. DO NOT TAKE THE CHANCE!**



WARRANTY: Our windshields and windows are warranted against defective materials and workmanship. The warranty is limited only to the replacement of the defective parts. There is no allowance for labor costs incurred during installation and removal of a defective part. Prior to installation the protective coating should be peeled and the part inspected. After inspection the window may be recovered with the protective coating which was removed or recovered with a cling type plastic food wrap. We will not assume any liability for damages due to improper installation or any damage incurred during shipping. Our warranty does not cover cracking, crazing, scratches or breakage. Any item shipped to us without proper authorization will be refused. Call for a return authorization number.

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