

The Engravers **Sand Blasting Manual**

**A Definitive guide to
Commercial Engraving
Using Sand Blasting**

Based on using Photopolymer PhotoMask Resist



www.problast.com.au

Version 2.1

Contents

| | |
|--|-----------|
| How Photopolymer Resist Works | 10 |
| How Sand Blasting Achieves Engraving | 10 |
| Equipment Assembly | 11 |
| PB2436 Pressure Pot System Assembly | 12 |
| PB2034 Auto Recycling Pressure Pot System Assembly | 13 |
| Siphon System – Mini “B” Assembly | 14 |
| Equipment Operation | 15 |
| Pressure Pot Systems | 15 |
| Siphon Systems | 15 |
| Wash-Out Hose | 16 |
| Pressure Settings | 16 |
| Nozzles | 16 |
| Compressor Maintenance | 16 |
| Fast Start Instructions | 17 |
| Exposing the PhotoMask™ | 17 |
| Washing out PhotoMask™ | 17 |
| Dry Off the Washed Out Resist | 17 |
| For SR3000 users – go to “Applying Resist” | 17 |
| Adhesive Application – For SR2000 Users | 17 |
| Applying the Resist | 17 |
| Blasting | 18 |
| Cleaning Up | 18 |
| Troubleshooting Guide | 19 |
| Artwork | 19 |
| Artwork is not printing dark enough | 19 |
| Exposure | 19 |
| Light source is not giving an even exposure | 19 |
| Washout | 19 |
| Wash out is taking a long time to wash out image | 19 |

| | |
|--|-----------|
| Some areas go a pasty blue and won't wash out | 19 |
| The resist goes wrinkly and crazes after wash out | 20 |
| The image is being washed away and ruined in the washout process | 20 |
| The image won't wash out at all | 20 |
| Fine areas of artwork such as small font serifs won't wash out properly | 20 |
| Drying | 20 |
| The resist is sticking to the blotting towel | 20 |
| The Resist is blotching with run marks | 21 |
| Adhesive Application | 21 |
| Some areas of the glue are taking much longer to dry to clear and tacky | 21 |
| Tiny bubbles occur under the resist that can't be burnished out | 21 |
| Too much adhesive is being applied through the sponge brush | 21 |
| The RZ adhesive is crystallising and forming lumps on my applied surface | 21 |
| Blasting | 21 |
| The abrasive flow keeps flowing even when my foot pedal is not on the foot pedal | 21 |
| Too much abrasive flows out when I blast | 21 |
| When I press the foot switch I get a burst of abrasive and I can blast but in about 30 seconds I seem to be getting nothing but air. I have to release it and step on it again | 22 |
| I can't seem to get a consistent sand flow, I get plenty of air but I just can't get the sand to flow | 22 |
| It seems to take a long time to blast a product | 22 |
| I get an uneven etched image when I blast | 22 |
| Some areas are harder to blast than others and result in different depths of blasting | 22 |
| When I blast the item the resist lifts off the surface ruining the item | 22 |
| Small areas of the resist blast away (such as the middles of an "a") | 23 |
| When I take my foot off the foot pedal the Sand flow keeps going | 23 |
| When I Pressurise the Pot I get sand flow straight away without even putting my foot on the foot pedal | 23 |
| Removing the Resist | 23 |
| Operations Manual | 24 |
| Artwork | 25 |
| Producing Artwork | 25 |

| | |
|--|----|
| Gang Sheets | 25 |
| Fonts | 25 |
| Printing the image | 25 |
| Laser Printed Images | 26 |
| Ink Jet printed Images | 26 |
| Black Art Spray | 26 |
| Artwork Summary | 27 |
| Exposing the Image | 28 |
| Exposing the Image | 28 |
| Overview | 28 |
| Light Sources | 28 |
| Over-exposing | 29 |
| Using the Letralite Exposure Unit | 29 |
| Letralite Maintenance | 29 |
| Flat Bed Exposure Systems | 29 |
| Using Mercury Vapour Lamps | 29 |
| Exposure Time Test | 29 |
| Exposure Summary | 30 |
| Exposure Times | 30 |
| SR2000 | 30 |
| SSR3000 | 30 |
| Washout | 31 |
| Procedure | 31 |
| To achieve fast consistent wash out follow these steps | 31 |
| Wash Out Summary | 32 |
| Drying Washed-Out Resist | 33 |
| Procedure | 33 |
| Resist Drying Summary | 33 |
| Two Types of Resist | 34 |
| SR3000 Self Stick PhotoMask Resist | 34 |
| How it Works | 34 |
| What's so Good about SR3000 Self Stick Resist | 34 |

| | |
|--|----|
| SR2000 | 35 |
| Why Use SR2000 | 35 |
| Adhesive application for SR2000 | 35 |
| Applying Adhesive directly to the resist using a spray system | 35 |
| Gravity Fed Spray Gun (Using RZ adhesive) | 35 |
| Applying Adhesive with the Adhesive Spray Gun | 36 |
| Applying Adhesive to the Resist with T-Fix Aerosol spray can | 36 |
| Applying Adhesive with a Brush | 36 |
| Applying the Mask to the Blasting Item | 37 |
| Round surfaces (e.g. wine glass/coffee mugs etc) | 37 |
| Warming the Glass | 38 |
| Rough surfaces such as Cast Bronze, Tiles, Pavers, Bricks and some Timbers | 38 |
| Application Accessories | 39 |
| Wire Wheel | 39 |
| Air Blower | 39 |
| Gaff Tape | 39 |
| Wash out Board | 39 |
| Sifting Ring – For PB2436 Users | 39 |
| Masking the Item to be Blasted | 40 |
| Sand Blasting Your Image | 41 |
| Pressure Pot average pressure 30psi | 41 |
| Siphon Systems average pressure 50psi | 41 |
| Pressure Pot Setting | 41 |
| Mini “B” Siphon System Setting | 42 |
| Foot Pedal Setting | 42 |
| Pressure Pots | 42 |
| Mini “B” Siphon System | 42 |
| Nozzles | 43 |
| Blasting | 43 |
| SR2000 | 43 |
| SR3000 | 43 |
| Etching Depth | 43 |

| | |
|---|----|
| 3,4 ,5,6 & 9 Mil Resist | 43 |
| Removing the Mask after Etching | 45 |
| Removing the Mask | 45 |
| Acrylic | 45 |
| Stainless Steel | 45 |
| Brass | 46 |
| Pewter | 46 |
| Silverware | 46 |
| Ceramic | 46 |
| Timber | 46 |
| T-Fix Adhesive | 47 |
| Shelf Life | 47 |
| Cleaning Procedure | 48 |
| Efficiency | 48 |
| General Trophies | 48 |
| Trophy Plate – Mr Sheen | 48 |
| Plastic Engraving Material – Orange Citrus Cleaning Fluid | 48 |
| Stainless Steel – Mr Sheen | 48 |
| Acrylic Trophies – McGuire’s Mirror Glaze 18 | 49 |
| Glass Trophies – Glass cleaning fluid | 49 |
| Silverware and Pewterware – Mr Sheen or Silvo | 49 |
| Paint Filling | 51 |
| Procedure | 51 |
| Peeling off the resist | 51 |
| Wet Clean Up | 51 |
| Dry Clean Up | 52 |
| Multi Colour Fill | 52 |
| Etching Glass | 53 |
| Exposing the PhotoMask™ | 53 |
| Washing out PhotoMask™ | 53 |
| Dry off the Washed out Resist | 53 |
| Adhesive Application– For SR2000 users | 53 |

| | |
|---|----|
| Applying the Resist | 54 |
| Blasting | 54 |
| Paint filling | 54 |
| Cleaning Up | 54 |
| Etching Wine Bottles | 55 |
| Acrylic Etching | 56 |
| Non-paint filled etching | 56 |
| Pre-Requisites | 56 |
| Exposure Guidelines | 56 |
| Preparation | 56 |
| Resist | 56 |
| Adhesive | 57 |
| Application | 57 |
| Sand Blasting | 57 |
| Removing the resist | 57 |
| Clean up | 58 |
| Paint filled Acrylic Etching | 59 |
| Paint Filling | 59 |
| Removing the resist | 59 |
| Clean up | 60 |
| Metal Etching | 61 |
| Stainless Steel | 61 |
| Brass | 61 |
| Pewter and Silverware Both etch well. See separate procedure on etching these metals. | 61 |
| Powder Coated Metals | 61 |
| Paint Filling | 61 |
| Pre-Requisites | 61 |
| Artwork | 62 |
| Exposure | 62 |
| Wash Out | 62 |
| Using SR3000 – Self Sticking Resist | 62 |
| Using SR2000 - Applying Adhesive – SR2000 Only | 63 |

| | |
|---|----|
| Applying the resist to the product to be etched | 63 |
| Etching | 63 |
| Paint Filling | 64 |
| Peeling off the resist | 64 |
| Wet Clean up | 65 |
| Dry Clean Up | 65 |
| Final Clean Up | 65 |
| Making Medals or Cast Medal Dies | 66 |
| SR3000 5mil is recommended for this procedure | 66 |
| SR2000 Users | 66 |
| SR3000 Users | 66 |
| Etching | 66 |
| Pewter Sand Blasting | 67 |
| Materials to use | 67 |
| Procedure | 67 |
| Etching | 67 |
| Clean Up | 67 |
| Photo Halftone Preparation & Sand Blasting Images | 69 |
| Required Elements | 69 |
| Photo Preparation | 69 |
| Converting to Half Tone | 71 |
| Sandblasting the Half Tone | 71 |
| Summary Sheet | 72 |
| Photoshop – Photo Images | 73 |
| Sandblasting Photo Images | 73 |
| Using Adobe Photoshop 5.5 | 73 |
| SR3000 is Recommended | 73 |
| Scanning and Image size | 73 |
| Touching up the Image | 74 |
| Convert to Half Tone | 74 |
| Create a Negative | 75 |
| Printing | 75 |

| | |
|---|----|
| Exposure and Washout of Film | 75 |
| Drying the Resist | 75 |
| Applying the Adhesive – SR2000 Only | 75 |
| Etching | 76 |
| Corel Photo Paint – Photo Images | 77 |
| Sandblasting Photo Images | 77 |
| Using Corel Photo-Paint 9 | 77 |
| Scanning and Image Size | 77 |
| Touching Up the Image | 78 |
| Convert to Half Tone | 78 |
| Create a Negative | 79 |
| Printing | 79 |
| Exposure and Washout of Film | 79 |
| Drying the Resist | 79 |
| Applying the Adhesive | 79 |
| Etching | 79 |
| Adhesive Applications | 81 |
| Procedure | 81 |
| Adhesive application by Gravity Fed Spray Gun | 81 |
| The Sponge Brush Method | 81 |
| T-Fix Adhesive spray | 83 |