

VR – Process 6  
**Revision History**

Apply Glue to FR4 and HDPE

| Date / Time | Rev | Author | Description         |
|-------------|-----|--------|---------------------|
| 8/26/2017   | A   | FS     | Original Version    |
| 9/28/2017   | B   | FS     | Process image added |

**Approvals**

| Rev | Approval | Customer | Engineering | Mechanical | Software | Mfg | OPS | QA | Test | Sales | Support | Corp |
|-----|----------|----------|-------------|------------|----------|-----|-----|----|------|-------|---------|------|
| A   | DT       |          |             |            |          |     |     |    |      |       |         |      |
|     | Initial  |          | FS          |            |          |     |     |    |      |       |         |      |

**1.0 Process Description**

|             |                                   |
|-------------|-----------------------------------|
| Description | <b>Apply Glue to FR4 and HDPE</b> |
|-------------|-----------------------------------|

|                      |               |
|----------------------|---------------|
| VR Part Number       | VR1           |
| Customer Part Number | 355467-01     |
| Configuration        | Standard      |
| Model                | SRA-16(20x69] |
| Process Number       | VR102601-06   |
| Process Standard     |               |

## 2. Setup

### 2.1 Technician

| Tech # | Certification Required | Skill               | Process | Safety |
|--------|------------------------|---------------------|---------|--------|
| 1      | No                     | Adhesive applicator | Yes     | Yes    |

### 2.2 Tools




#### 2.2.1 Calibrated Tools

| Number | Tool | Description | Rev | Specification | Calibration Requirements | Image |
|--------|------|-------------|-----|---------------|--------------------------|-------|
|        |      |             |     |               |                          |       |

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## 2.2.2 Non-Calibrated Tools

| Number | Tool                             | Description   | Rev | Specification                         | Requirements                                 | Image  |
|--------|----------------------------------|---|-----|---------------------------------------|--|--|
| 1      | Compressor Output Pressure Gauge | Pressure gauge used to control pressure inside air agitated pressure tank and spray gun | 1   | Pressure controlled at 90PSI          | Check pressure every time production starts  |   |
| 2      | Spray gun pressure valve.        | Pressure gauge used to control pressure going to the spray gun                          | 1   | Pressure controlled at 70PSI          | Check pressure every time production starts  |   |
| 3      | Air Agitated Pressure Tank       | 5 Gallon Pressure Pot, Steel Teflon Coated, 29 x 18 x 16 (51-504)                       | 1   | Adhesive pressure controlled at 30PSI | Check pressure every time production starts. |  |



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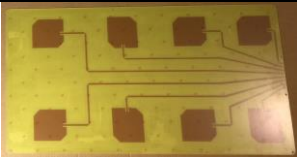

|   |                            |  |   |   |   |   |
|---|----------------------------|--|---|---|---|---|
| 4 | Teflon Coated Spray Gun    | Spray gun used to add adhesive to FR4 and HDPE               | 1 | Adhesive Gun Spray Fluid Flow Measurement | Adhesive Gun Spray Fluid Flow Measurement (4oz/min or 2.5g/ft <sup>2</sup> )(Pressurize fluid source only; pull trigger, flow material into measuring device for 60 seconds, increase or decrease fluid source pressure to obtain desired fluid flow) |  |
| 5 | FR4 to HDPE Gluing Fixture | Used to prevent adhesive from being sprayed on HDPE corners. | 1 | FR4 to HDPE Assembly Fixture              | Check if fixture side, the side in contact with HDPE, is free of adhesive and debris. To remove excess adhesive or debris, use M-4, M-5 and M-6.  |  |

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|   |   |  |   |  |  |   |
|---|---|--|---|--|--|---|
| 6 | Adhesive Gun<br>Spray Air<br>Compressor | Air compressor for<br>adhesive application   | 1 | Min 5HP and<br>17CFM   | Check if compressor<br>is on (Switch pointing<br>up) and that the<br>pressure inside the<br>tank is higher than<br>150PSI. |  |
| 7 | Hose Set                                | Hose set for adhesive<br>and air application | 1 | Set 25', 16 CFM,<br>5/16" air and 3/8"<br>fluid.<br>AFS-1142 | Hoses need to be<br>attached to the<br>agitator tank.  |  |

2.3 Materials

| # | VR Part Number | Mfg Part # | Manuf   | Description                  | Qty | Requires Serial # | Size        | Tolerance   | COC Req | Lot Req | Incoming QA Req | Image  |
|---|----------------|------------|---------|------------------------------|-----|-------------------|-------------|-------------|---------|---------|-----------------|--|
| 1 | VR102656       | 3M - 4693  | 3M      | High performance 3M Adhesive | 1   | N                 | See BOM     | N/A         | Y       | Y       | N               |   |
| 2 | VR102651       | See BOM    | See BOM | FR4 Sheet (21"x48")          | 2   | N                 | See Drawing | See Drawing | Y       | Y       | N               |   |
| 3 | VR102681       | See BOM    | See BOM | 3/8 HDPE – Front Side        | 1   | N                 | See Drawing | See Drawing | Y       | Y       | Y               |  |

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|   |          |              |              |   |   |   |     |     |   |   |   |  |
|---|----------|--------------|--------------|---|---|---|-----|-----|---|---|---|--|
| 4 | VR102694 | 3125         | Pure Tronics | Isopropyl Alcohol                       | 1 | N | N/A | N/A | N | N | N |   |
| 5 | VR102695 | 021200-21429 |              | 3M Scotch Weld No.2 Solvent             | 1 | N | N/A | N/A | N | N | N |   |
| 6 | VR102696 | S-13631 BLU  | Uline        | Heavy-Duty Wipers or Micro Fiber Towels | 1 | N | N/A | N/A | N | N | N |  |

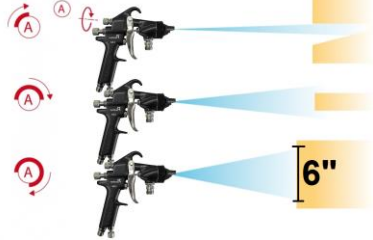

**2.4 References**

| Number | VR Doc Number | Rev | Description | Manuf | Directory |
|--------|---------------|-----|-------------|-------|-----------|
|        |               |     |             |       |           |

**2.5 Safety**

| Number | Type                      | Description  | Reference     |
|--------|---------------------------|--|---------------|
| 1      | Ventilation               | Area needs to be well ventilated where adhesive is to be applied | Refer to MSDS |
| 2      | Dust Masks or Respirators | Use of respirator while applying adhesive is required            | Refer to MSDS |

### 3.0 Procedure

| Step | Tech | Tool                  | Material         | Tasks description  | Reference Drawing | Image  |
|------|------|-----------------------|------------------|--|-------------------|--|
| 1    | 1    | NC-4 or NC-5 and NC-6 | M-1, M-2 and M-3 | Surface Preparation (Surfaces must be dry and free of dust, dirt, grease, oil, mold release materials and other contaminants.) |                   |  |
|      |      |                       |                  | Check and adjust adhesive spray pattern to 6 inches wide.  |                   |   |
| 2    | 1    | NC-3                  | M-3              | Place FR4 gluing fixture on top of HDPE Panel to prevent excess glue from reaching beyond the FR4 routed area.                 |                   |  |

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|   |   |      |          |   |  |  |
|---|---|------|----------|---|--|--|
| 3 | 1 | NC-2 | M-1, M-3 | Apply even coat of adhesive to HDPE, starting from the mux board side and making your way up, left to right with 50% overlap between, covering the area where the panel surfaces will be in contact with the FR4 panel. |  |  |
| 4 | 1 | NC-2 | M-1, M-2 | Apply even coat of adhesive to the back of the FR4 panel, starting from the mux board side and making your way up, left to right with 50% overlap between coats, covering the entire back of the panel.                 |  |  |

|   |   |     |     |   |  |  |
|---|---|-----|-----|---|--|--|
| 5 | 1 | N/A | N/A | Check if adhesive was applied evenly on all surfaces.<br>If more adhesive is needed, reapply. |  |  |
|---|---|-----|-----|---|--|--|

## 4.0 Process Recording

| Step | Tasks description | Reference Drawing / Image |
|------|-------------------|---------------------------|
| 1    |                   |                           |

## 4.0 Non Compliance

| # | Non Compliance | Disposition | Reference Drawing / Image |
|---|----------------|-------------|---------------------------|
|   |                |             |                           |