

## Customer Supplied Material Guidelines

A key to timely and efficient building of kits is to provide clean kits. Following these guidelines will help ensure your kits are not delayed and additional processing and costs are not incurred. Carson Manufacturing performs incoming audits of the materials in your kits – comparing the materials received, to your latest BOM. If any issues are discovered during our audit we will notify you in advance of the build, where possible, so that you have a chance to remedy any shortages and/or discrepancies. Please note, not all issues can be captured at the time of kit audit and therefore some action may be needed at the time of build. The following are specific points that help speed assembly and ensure quality.

### Printed Circuit Boards:

- PCB's or Array **Must** have 1 set of parallel sides.
- PCB's **require** clearance of 0.190" from PCB edge to closest component (on parallel sides) otherwise; "rails" will be required to prevent component damage.
- PCBs for SMT placement require unique fiducials on each populated side (top and/or bottom) for machine reference and accuracy during screen print and placement. Unique Fiducials are recommended to be placed within the confines of the artwork, if "real estate" is not available fiducials can be placed on "waste rails" (outside of the artwork). Each fiducial pair should be replicated for each stepped & repeated image (array).
- PCB's for Automated Axial or DIP insertion require 0.125" tooling holes located 0.125-0.250" from outer edge of PCB and not to exceed a 6" span or be closer than 2" to the next location. These tooling holes need to be located in a NON-populated area of the PCB.
- Minimum size is 3.2" X 3.0" (Y-axis (width) x X-axis (length))
- Maximum size is 15" X 18" (Y-axis (width) x X-axis (length))

### Components:

- SMT placement machines do occasionally drop parts, so kit should include an extra 5% quantity for SMT passive components i.e. resistors, capacitors (10% for 0402's). Other components should include 5% extra (a minimum of one piece) unless otherwise agreed by the parties in advance.
- Reeled parts and cut tape should include 3" of leader strip (empty pockets) or 3" of additional components (in addition to the qty in item one) that will be dropped in the course of feeder loading. (6" minimum continuous length)
- Cut tape is acceptable provided it is continuous and meets the requirements detailed in items 1 and 2 above. Please do not splice tape (i.e. tape cut strips together or tape leaders to a reel). This process does not work well with the SMT equipment and often results in damaged strips causing discarded parts and production delays.

## **WBE Certified**

- Customer must confirm all components are compatible with lead-free or tin lead processes according to customer specifications.
- Moisture sensitive devices including raw PCB's should be packaged along with desiccant and a Humidity Indicator Card (HIC) in a sealed bag. If it is discovered that moisture sensitive devices are received without a HIC or with HIC's indicating the product has been exposed to excessive humidity, prior to building the product, in order to avoid damage to the boards or parts, Carson Manufacturing will need to bake the parts at a cost to the customer. Note that this will cause 1-3 days of delay in processing your product.
- If during set-up on the SMT line, Carson Manufacturing discovers that a part's leads do not match the footprint on the board (wrong size for example), Carson Manufacturing will attempt to contact the customer for guidance. If the customer is unavailable Carson Manufacturing will use our best judgment and may decide to build the board short that component. If we must pull the job off the SMT line for this reason, additional set-up / tear-down fees may apply.
- For materials that don't meet the above guidelines, the customer may request that Carson Manufacturing hand install SMT components prior to reflow – please contact your Carson program manager for respective charges.
- Any components shipped that do not match the original approved vendor list (AVL) on the customer BOM will be flagged and set aside in the non-conforming area during the kit audit process and require customer approval before released to build.
- If insufficient materials are provided, and the customer requests Carson to proceed with the build some or all of the boards may be built with missing components. In such cases Carson Manufacturing will provide the customer with documentation identifying which boards were built short and which shortages exist for each board by serial number. The customer will need to hand solder the shortages (no workmanship warranty from Carson Manufacturing for components installed by the customer) or if requested by the customer, Carson will hand solder the shortages upon receipt of additional materials – please contact your program manager for respective charges.