

USA ATLAS SCT Barrel Module Adhesive Procedure

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Revision History

V1.0 Original version

V2.0 Major revision after qualification, added electrically conductive procedure

1.0 Adhesive dispense - Thermally conductive adhesive

- 1.1 Turn on machine Fisnar 750LN & press the HOME key.
- 1.2 Clean room PSI should be 60 PSI min, machine regulator set at 50 PSI.
If the pressure is too low - turn off all unnecessary vacuum pumps and seal off any air leaks. A stable pressure is needed to dispense consistent adhesive dots.
- 1.3 Have the part located and securely fastened to its fixture.
Make sure the stage and the surface of the fixture are clean and free of debris.
- 1.4 Press MODE to cycle thru the options to 'POINT REGISTER' and press ENTER.
Select the program you want (use the EDIT keys to select) and press ENTER.
Make sure there is no syringe in the collet at this time.
The display will show the first point. Press GO to go to first point.
Now install a syringe with a tip into the collet and position the tip onto the surface of the fixture with a .012 shim between the tip and the fixture. DO NOT TIGHTEN the collet (collet is kept loose so if anything is wrong the tip will not crash into the part). The Z height is set off the top surface of the fixture.

Press GO to move to return position, then press GO to move tip to first position.
Check first point (bottom left) for correct Z-height and X & Y positioning
If first point is good then move onto the far top right point (# 137)
Use EDIT keys to cycle thru the program, or SHIFT & EDIT+ simultaneously to go directly to end of program, then EDIT key back to point # 137
Check Z height and X & Y positioning.
If everything looks OK, return stage and syringe to home position (press HOME key) and go to step 6.

1.5 Changing the tip location

If the tip position is bad, check that the fixture is snug against the locating pins, check that the part is secure, and the syringe and tip is not bent.
If the tip is still not in the desired position, you need to change the program location.

Return stage to HOME. Press the MODE to return to “POINT REGISTER”.
Select desired program with edit keys and press ENTER.
Press PROGRAM, press EDIT until you see option 5 and 6 (or X and Y)
Choose axis you want to reposition (**Caution** - X and Y axis are physically reversed from a normal machine).
Enter the amount to move the program (enter 0 before the number for a negative amount)
* Whenever any part of the program is changed and before you exit “POINT REGISTER” mode you must go to the end of the program (SHIFT + EDIT). The last step will have an “E” on it. Press END button, then ENTER, and this will register any changes made to the program.

2.0 **ADHESIVE MIXING and LOADING**

Only mix the glue when ready to apply it. Practical useful working time is 20-30 minutes.

2.1 **MIX WEIGHTS**

2.5g Epoxy
2.0g Hardener
2.0g Boron nitride powder

DO NOT breathe BN powder. Mixing is done at glue mixing station. Operator should wear rubber gloves and a breathing mask.

2.2 **INSTRUCTIONS FOR GLUE MIXER**

Mix using Keyence mixing machine.

2.3 **Syringe fill and purge**

Attempt to fill the syringe without air bubbles. Bubbles can result in poor/no dispensing of epoxy.

Connect syringe to air line.

Press MODE until you get to PLAYBACK MODE, then set the MANUAL selector switch on the machine (lower right corner of machine) to “E”. Turn on the orange switch on the pneumatic dispenser.

Press the START button to start dispensing epoxy. Let the epoxy flow until you are sure you have a smooth bubble free flow from the tip.

Be sure to turn off the orange switch on the pneumatic dispenser when finished purging the syringe. (this is the timer switch)

3.0 **ADHESIVE RUN**

Reinstall the syringe into the collet, but do not tighten.

Press MODE until you return to the "PLAYBACK MODE."

On the MANUAL selector on the machine select the program you wish to run (preferably the one you just set up to run).

Press START.

The tip will move to the Z height set spot on the fixture and come to a stop.

Slide the syringe down till it rests on your shim placed on the fixture. (Z zero on the fixture is Z zero on the part. The shim will determine the height the tip is above the part (.012).

Snug up the syringe in the collet.

Press START to continue the program run.

Watch the program as it runs (approx.13 min) and keep a small stick or scalpel on hand to clean up any strings or mishaps that may occur.

4.0 Electrically conductive glue

If glue is already prepared (less than 100 hours) and has been in freezer, thaw it out and go directly to step 8.12, otherwise,

- 4.1 Weigh hardener droplet on precision digital scale. For 1 gram of silver, require 0.02 grams of hardener.
- 4.2 Add appropriate quantity of resin/silver component
- 4.3 Mix thoroughly by HAND.
- 4.4 Load syringe or cup.
- 4.5 Deposit small sample on another aluminum cup and cure for 2hr at 50C if a test run is specified.