



CBPS-207 PROCESS SPECIFICATION

June 9, 2011 Revision C

Click Bond, Inc. • 2151 Lockheed Way • Carson City, Nevada 89706-0713 • 775-885-8000

PROCEDURE TO REMOVE CLICK BOND FASTENERS

1. SCOPE

- 1.1. This process specification establishes procedure for removing various Click Bond adhesive bonded fasteners which are mounted to composite or metallic substrates.

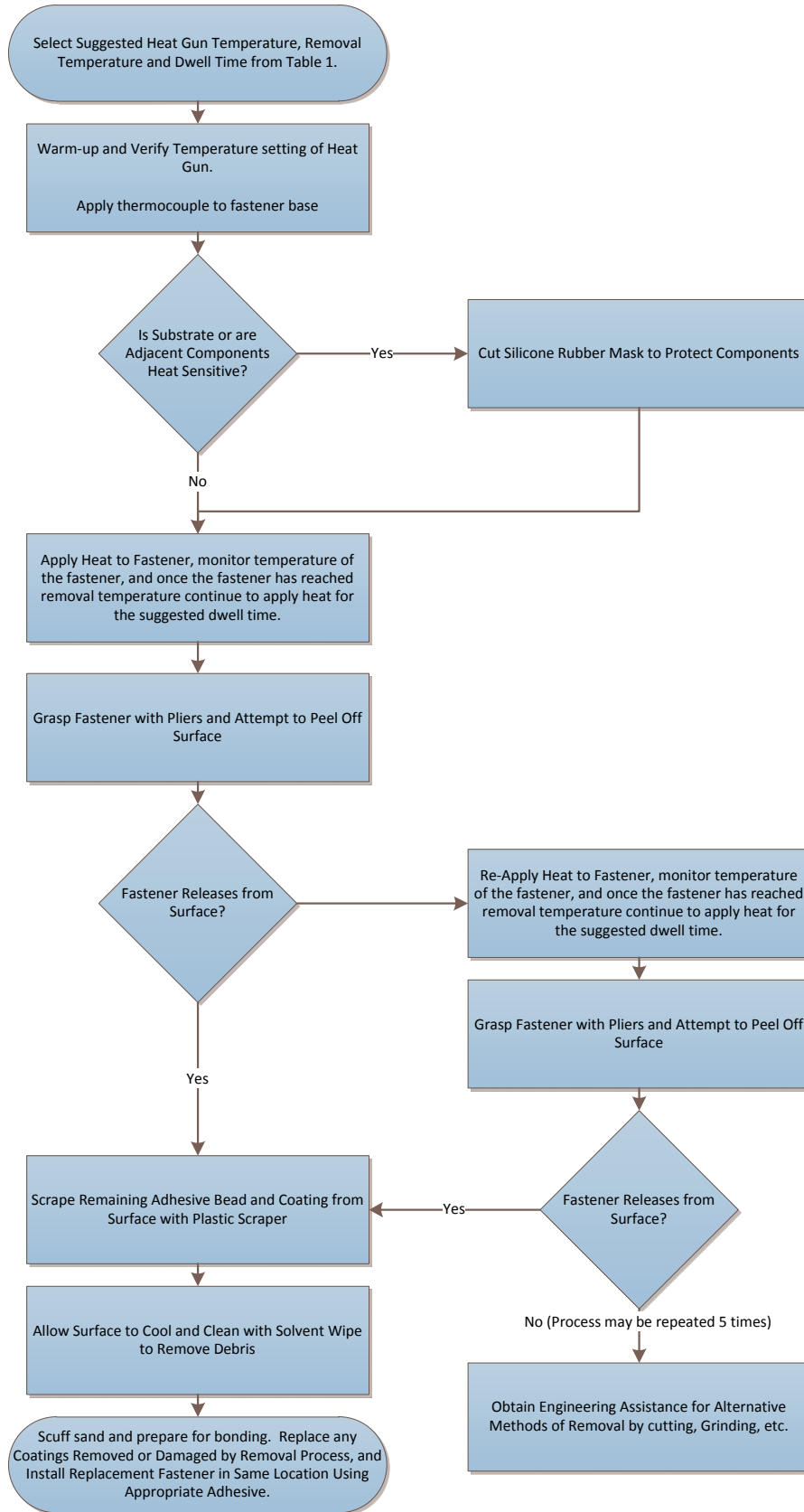
2. REQUIREMENTS

2.1. MATERIALS

2.1.1. EQUIPMENT & SUPPLIES

- 2.1.1.1. Portable temperature controlled heat gun, Click Bond CB115 or equivalent.
- 2.1.1.2. Scraper, phenolic plastic blade, Click Bond CB116 or equivalent.
- 2.1.1.3. Pliers, slip joint, commercial
- 2.1.1.4. Thermocouple 0 to 500 F, commercial
- 2.1.1.5. Silicone rubber sheet, 1/8 inch thick, commercial
- 2.1.1.6. Sand Paper, 180 Grit
- 2.1.1.7. Solvent CB911 or Acetone

2.2.PROCESS FLOW CHART



2.3 SELECTION OF TEMPERATURE AND HEAT APPLICATION TIME

2.3.1 All substrate materials must be protected from excessive temperatures during the application of heat to soften the adhesive material attaching the fastener. Excessive temperatures can cause the following damage, some of which will not be apparent to the mechanic but which can materially affect the function of the structure

2.3.2 Damage caused by over temperature

2.3.2.1 Loss of temper and strength in metallic substrates.

2.3.2.2 Disbonds and delamination in composite substrates.

2.3.2.3 Blistering of substrate caused by over temperature.

2.3.2.4 Failure of adjacent temperature sensitive components.

2.3.3 Limitation of over temperature damage. Simple ways to prevent excessive temperature damage are:

2.3.3.1 Keep maximum output air temperature of the heat gun below the threshold of damage temperature of the substrate and adjacent components.

2.3.3.2 For output air temperature above this threshold temperature, limit the time of heat application such that adjacent components and substrate do not reach the threshold temperature. This time will be a function of the thermal mass of the component and substrate.

2.3.3.3 Mask adjacent components and exposed substrates with a heat shield mat to keep heat transfer to a minimum and delay temperature rise in protected components.

2.3.3.4 Use recommended settings from Table 1 and monitor substrate and adjacent component temperatures with thermocouple or temperature indicating paint.

2.3.4 Choose appropriate dwell time , heat gun setting/temperature and a fastener base removal temperature

The appropriate column will give a tool setting, a recommended heat gun setting/temperature, a suggested dwell time, and a fastener base removal temperature.

TABLE 1: HEAT GUN TEMPERATURE AND DWELL TIMES FOR CLICK BOND FASTENER REMOVAL

Adhesive	Heat Gun		Fastener base removal temperature, Monitor with Thermocouple +/- 10°F	Dwell Time, Seconds	
	Setting #	Temp °F		Min	Max
CB200	3	500	250	30	45
CB420	3	500	250	30	45
CB359	3	500	200	30	60
CB394	3	500	300	45	65

2.3.5 Masking of adjacent heat sensitive components

When applying heat in areas with a high density of heat sensitive components a conformal heat shield mat cut from silicone rubber sheet can be draped over the parts with a hole cut into it to expose the fastener to be removed. The hot air stream from the heat gun is concentrated on the area of the hole and the adjacent areas are shielded from the heat. A typical mask is show in Figure 1.

2.4

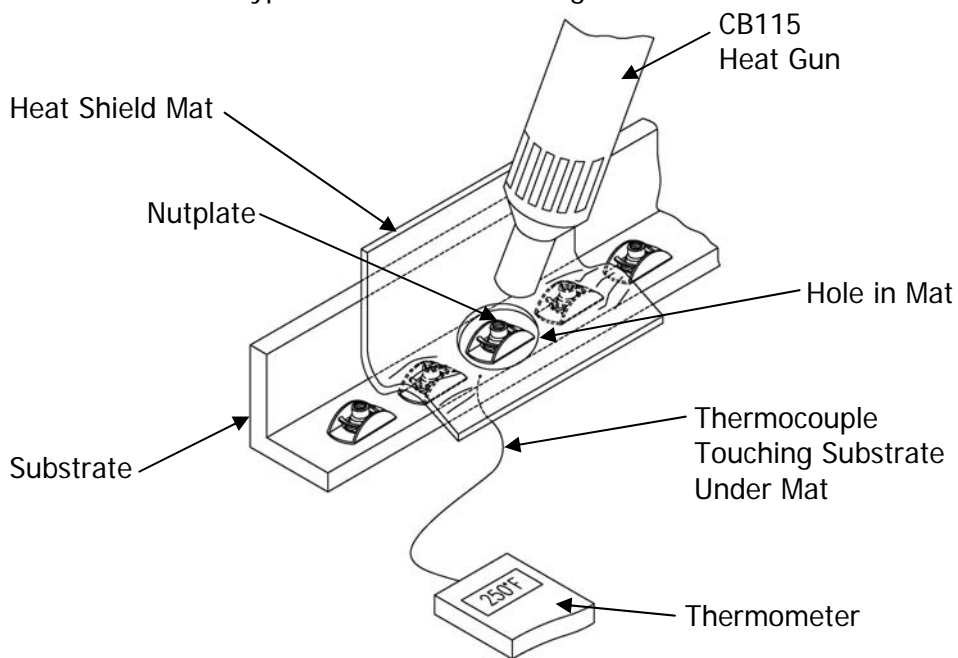


Figure 1.

Applying Heat

Hold the heat gun so that the air stream impinges upon the fastener as near to a right angle to the plane of the substrate as possible. This will cause the fastest heating of the fastener and minimize heat transfer to the substrate. Position the tip of the heat gun approximately one inch from the base plate of the fastener. Monitor the heat at the surface of the fastener with a thermocouple. Keep the air stream centered on the fastener. See figure 2.

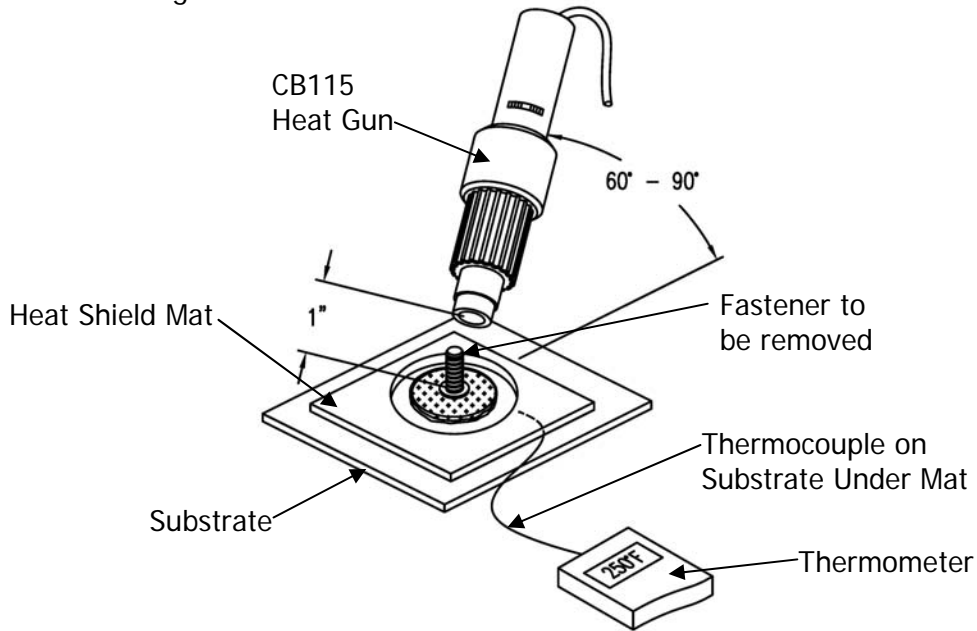


Figure 2.

2.5 Removing Fastener

After fastener base has reached removal temperature for the recommended dwell time turn off heat gun and set aside. Using pliers, promptly grasp fastener and pry off the surface using an application of force which maximizes cleavage or peel stress on the bond line. See figure 3.

2.6

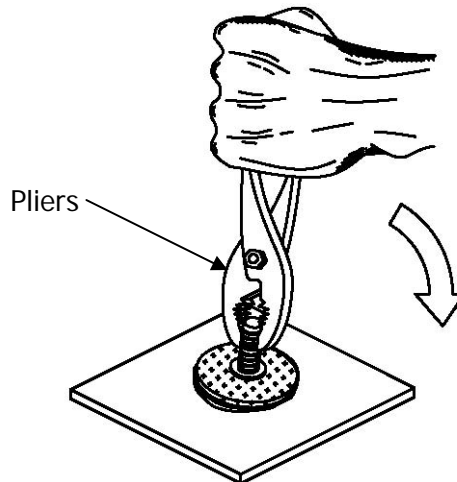


Figure 3.

Remove Residual Adhesive

The adhesive remnants which remain behind on the substrate surface should be removed by again applying heat from the heat gun to the surface for a short time and then scraping the softened material from the surface with a phenolic scraper. Care should be used to avoid scratching the surface or causing delamination of substrate materials around holes and edges. See Figure 4.

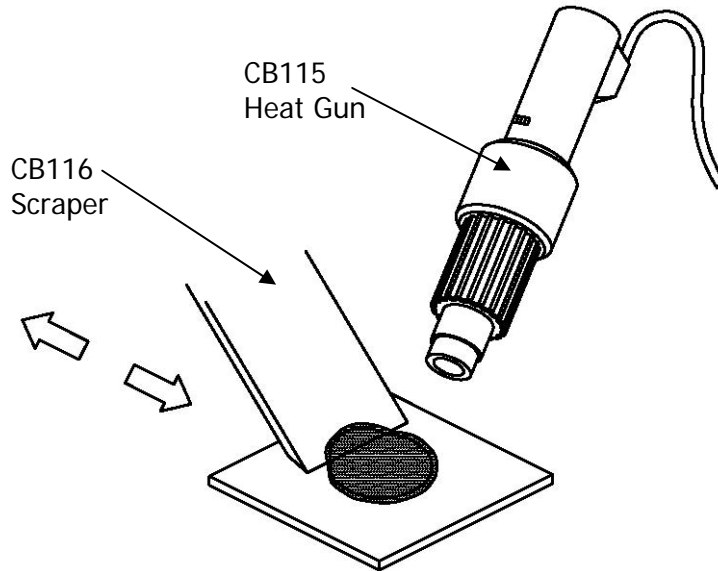


Figure 4.

Allow the substrate to cool to room temperature and then lightly abrade the surface with 180 grit sandpaper to prepare for re-bonding or protective coating application. Wipe with solvent and dry with a clean dry cloth.

3 SAFETY AND ENVIRONMENTAL COMPLIANCE

- 3.1 Those persons using electric powered tools to apply heat to aircraft components must consider the flammable or explosive nature of certain aircraft structure. The wings and fuselage frequently contain fuel tanks which could present a fire or explosion hazard. Fuel tanks must be properly inerted by qualified technicians prior to being worked on.
- 3.2 Proper ventilation is necessary to prevent the accumulation of fuel vapor in low spots of structure and possible ignition by sparks from tools used to cut, drill or heat components. Ventilation is also necessary to allow persons to enter these structures and work. A supplemental supply of breathing air for the worker and a person standing safety watch outside the structure is sometimes necessary.
- 3.3 Solvents used for cleaning surfaces must be used sparingly and proper ventilation provided to protect the worker from inhalation of the fumes.
- 3.4 Airborne particulate matter provided by sanding, drilling, and cutting should be removed by local suction from an appropriate source.
- 3.5 The storage, handling, use, transportation and disposal of goods, supplies, materials, articles, items, equipment, machines, tools, parts, components, assemblies, chemicals and processes referenced herein shall comply with all applicable national/international, federal, state and local health, safety and environmental laws, ordinances, rules regulation and codes.

CBPS 207 REVISION A

AMENDMENT 1 – MARCH 20, 1995

PROCEDURE TO REMOVE CLICK BOND FASTENERS

SEALED NUTPLATES AND SLEEVED SEALED NUTPLATES

SLEEVED SEALED NUTPLATES

When it becomes necessary to remove a sleeved sealed nutplates (because of nut failure, leakage, or other requirements), the first step in the procedure is to drill out the sleeve. Care should be exercised to avoid damaging the substrate. It will be necessary in the most instances to use the same hole for installation of another sleeved nutplate after this fastener has been removed. In these instances, it will be helpful for the substrate hole to have the same diameter as was used for the initial fastener installation.

After the sleeve has been removed, the procedure specified in CBPS 207 for fastener removal should be followed.

CAUTION: PLEASE FOLLOW ALL SAFETY PRECAUTIONS FOR THE FASTNER REMOVAL PROCEDURE. PARTICULAR ATTENTION SHOULD BE GIVEN TO PARAGRAPHS 3.1 AND 3.2 ON PAGE 8 OF 8.

EXAMPLES OF SLEEVED SEALED NUTPLATES: CB6309, CB6409, CB9069

SEALED NUTPLATES

When it becomes necessary to remove a sealed nutplate (because of nut failure, leakage, or other requirements), follow the CBPS 207 procedure for fastener removal.

CAUTION: PLEASE FOLLOW ALL SAFETY PRECAUTIONS FOR THE FASTENER REMOVAL PROCEDURE. PARTICULAR ATTENTION SHOULD BE GIVEN TO PRAGRAPH 3.1 AND 3.2 ON PAGE 7 OF 8.

EXAMPLES OF SEALED NUTPLATES: CB2010, CB6010, CB2031, CB3016, CB9030

NOTE: In the case of a sealed nutplate in which leakage is a concern, a sealant may be used to rectify the problem.