MAINTENANCE GUIDE

1. GENERAL

The airplane is equipped with a Cirrus Airplane Parachute System (CAPS) designed to bring the aircraft and its occupants to the ground in the event of a life-threatening emergency.

CAPS consists of a parachute, a solid-propellant rocket to deploy the parachute, a rocket activation system, and a harness imbedded within the fuselage structure.

A composite enclosure containing the parachute and solid-propellant rocket is mounted to the airplane structure immediately aft of the baggage compartment bulkhead. The enclosure is covered and protected from the elements by a thin composite cover.

The parachute is enclosed within a deployment bag that stages the deployment and inflation sequence. The deployment bag creates an orderly deployment process by allowing the canopy to inflate only after the rocket motor has pulled the parachute lines taut.

The parachute itself is a 2400-square-foot round canopy equipped with a slider, an annular-shaped fabric panel with a diameter significantly less than the open diameter of the canopy. The canopy suspension lines are routed through grommets so that the slider is free to move along the suspension lines. Since the slider is positioned at the top of the suspension lines near the canopy, at the beginning of the deployment sequence, the slider limits the initial diameter of the parachute and the rate at which the parachute inflates. The canopy inflates as the slider moves down the suspension lines.

A three-point attachment harness connects the airplane to the parachute. The harness consists of two forward straps faired into the fuselage skin and attached to the firewall, and one rear strap attached to FS 222 bulkhead located directly forward of the CAPS enclosure. The harness system is designed to control the pitch dynamics of the airplane during the deployment cycle by limiting the aft attachment strap's length until the cycle is complete. This is accomplished by utilizing a variable length strap section. The shorter section, which initially supports the load, employs a mechanical release that is activated by two pyrotechnic cutters which fire when the short section is pulled taut during extraction. The harness strap then lengthens and load is transferred to the longer section.
A. **Description and Operation (See Figure 95-01-011)**

Two separate and deliberate pilot actions are required to deploy the CAPS parachute. The first action requires the pilot to remove the access cover from the activation handle enclosure. The second action requires the pilot to pull the activation handle out, and down several inches.

Upon pulling the activation handle, the activation cable compresses the igniter’s steel spring, cocks the plunger and the following sequence is initiated: When one half-inch of plunger travel is reached, captured ball-bearings are released allowing the plunger to strike the firing pins. The firing pins strike two primers which ignite the primary booster. The primary booster ignites a secondary booster ensuring ignition of the larger rocket motor. Once ignited, the rocket propellant’s hot gases are exhausted through the nozzle and the rocket bursts through the CAPS enclosure cover pulling the deployment bag from the enclosure. The deployment bag then stages the suspension line deployment and inflation of the parachute. As the parachute inflates, the forward harness assembly grows taut, pulls free of the fuselage skin, and stops at the firewall compression tube which supports the forward portion of the airplane. The rear harness’ shorter section is pulled taut, initiates the pyrotechnic line cutters which sever the shorter lines, and allow the longer harness section to support the aft load. The airplane then assumes its touchdown attitude; approximately ten degrees nose down, to optimize occupant protection.
Figure 95-01-011
CAPS System and Deployment

1 - Rocket Extraction
2 - Parachute Extraction
3 - Line Extension
4 - Initial Canopy Inflation
5 - Reefed Parachute
6 - Parachute Disreef
7 - Snub Line Release

EFFECTIVITY:
All

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B. Activation System (See Figure 95-01-012)

The rocket motor is activated by pulling an activation handle mounted in a recessed enclosure located in the headliner above the pilot/copilot. This handle is connected to the rocket motor igniter with a flexible, stainless steel aircraft grade cable routed through a cable housing above the cabin ceiling headliner.

A cover/placard is attached to the perimeter of the activation handle enclosure to prevent the handle from being pulled accidentally. The placard identifies the system, presents the actions required to deploy it, defines its operating envelope, provides appropriate warnings, and references the airplane Flight Manual.

A maintenance safety pin is provided to ensure that the activation handle is not pulled during maintenance or other ground operation. The pin is inserted through the handle retainer and barrel locking the handle in the “safe” position. A “Remove Before Flight” streamer is attached to the pin. The handle is the only part of the system accessible to the pilot in flight.

C. Solid Propellant Rocket Motor Assembly (See Figure 95-01-012)

The CAPS rocket motor assembly consists of the igniter, rocket motor, and rocket motor base. The igniter consists of a steel spring, a plunger, two firing trains, and a firing pin actuator to which the activation cable is attached. Each firing train consists of a firing pin and primer which ignites a booster. In its normal position the firing pin actuator and plunger are interlocked with two ball bearings held in place by the inner wall of the igniter body.

(1) Rocket Igniter

Pulling the activation cable compresses the rocket igniter spring and cocks the plunger. One half-inch of plunger travel is required to release the ball bearings and allow the plunger to strike the firing pins. The firing pins then strike the shotgun-type primers which ignite a black powder and magnesium primary booster in the end of the igniter. The igniter is unarmed in its normal configuration since the spring is un-compressed and the plunger is separated from the firing pins by a 0.060-inch gap.

The igniter primary booster ignites a secondary black powder and magnesium booster contained in the rocket motor base. The extra booster material is used to ensure ignition of the larger rocket motor. The rocket motor base has a conical protrusion which sprays hot particles past the rocket nozzle and across the surface of the rocket motor’s solid propellant. Once ignited, the grains will burn on all exposed surfaces to form hot gases which are exhausted through the nozzle providing thrust.

(2) Rocket Motor

The CAPS rocket motor uses stored chemical energy in the form of a solid propellant to provide the thrust forces necessary to rapidly remove the enclosure cover and extract the parachute from its enclosure.

The rocket motor components consist of the motor case, motor aft bulkhead, propellant, and nozzle. The motor case/aft bulkhead contains the propellant and serves as a pressure chamber when the propellant is burning.

The rocket motor uses a composite propellant, consisting of a heterogeneous mixture of ammonium perchlorate (AP) and aluminum powder (Al), the oxidizer and fuel. These are the most commonly used types of these ingredients in modern solid propellants.

The rocket motor nozzle provides for the expansion and supersonic acceleration of the hot gases. The rocket motor has been designed to specifically meet the extraction requirements of the CAPS parachute.
Figure 95-01-012
CAPS Handle and Ignition System

EFFECTIVITY:
All

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D. Incremental Bridle and Deployment Bag (See Figure 95-01-013)

The rocket motor is attached to the deployment bag via a set of Teflon sheathed stainless steel cables, or rocket lanyards, and an incremental bridle. The incremental bridle consists a length of nylon webbing that is folded in half and sewn with a series of bartack stitches. Upon activation these stitches are peeled away to provide proper rocket/bag dynamics by acting as a shock absorber. The incremental bridle, which is connected to the end of the rocket lanyards is protected from the rocket exhaust by a heavy kevlar sheath.

A deployment bag is used to contain the packed parachute assembly within the fuselage enclosure and stage its deployment and inflation sequence. The parachute assembly is packed into two compartments within the deployment bag. The innermost compartment contains the canopy and is secured by an internal flap that is locked in place with a series of locking loops to ensure that the canopy cannot be extracted from its compartment until the suspension lines, stored in the outer compartment, are pulled taut, and the line stows are extracted from the locking loops that hold the flaps closed.

The suspension lines are secured with a hook and loop closure. The four outer flaps are secured with five steel curved release pins attached to the riser. The pins are extracted when the riser is pulled taut during extraction. The deployment bag creates an orderly deployment process by allowing the canopy to inflate only after the rocket motor has pulled the aircraft attachment harness, riser and suspension lines taut and pulled the deployment bag off the canopy. This prevents any slack or uneven tension in the suspension lines during canopy inflation that could result in a malfunction.
Figure 95-01-013
Incremental Bridle and Deployment Bag
E. Parachute Assembly (See Figure 95-01-014)

The parachute slows the airplane to a descent speed that is conducive to a safe touchdown. The basic structure of the parachute assembly consists of the canopy, suspension lines, and the slider; a component used to aerodynamically reef the parachute and limit inflation loads.

1. Canopy and Suspension Lines
   The 2400 sq ft round canopy, which creates the aerodynamic drag, is made up of a series of fabric panels sewn together to form its desired shape. The canopy has a vent at its center to allow some air to escape in a controlled manner and thus reduce oscillations and provide a stable descent. Vent lines are attached to the perimeter of the vent and routed symmetrically across its center to provide structural support and maintain its shape.

   The suspension lines are attached to the “skirt” of the canopy and converge to a riser or set of risers at the opposite end. The canopy structural integrity is enhanced by a “skeleton” of tapes and webbings sewn nearly perpendicular to each other to the top surface of the canopy fabric. Radial bands run from opposite suspension line attachment points, across the top of the canopy. The skirt band, vent band, and lateral bands run around the circumference of the canopy.

   The CAPS parachute is fabricated from woven textiles in the form of fabrics, tapes, webbing, and thread. All of the textile components in CAPS are fabricated from either Kevlar or Nylon and are woven to military specifications that define specific parameters such as yarn count, yarn twist, weave type, and finish. To insure good aging characteristics, the only exception to the use of Kevlar and Nylon is a Teflon cloth buffer on the risers at the suspension line attachment point.

   A typical deployment load profile begins with a snatch force which occurs when the parachute assembly is initially extracted from its container and pulled to full line stretch. When air begins to fill the canopy, inflation loads result. The parachute is designed to deploy without generating forces high enough to injure the airplane occupants.

2. Slider
   To limit inflation loads, CAPS uses a slider to aerodynamically reef the parachute. The slider is a flat annular shaped fabric panel with metal grommets attached to its perimeter. The parachute suspension lines are routed through the grommets so that the slider is free to move along the suspension lines. The slider, which has a significantly smaller diameter than the fully inflated parachute, is positioned at the top of the suspension lines, next to the canopy skirt, when the parachute is packed. It therefore limits the initial inflated diameter of the parachute and hence the inflation loads. During inflation, the slider remains next to the skirt for a period of time that is dependent on the dynamic pressure acting on the system. This allows the payload to decelerate to a speed at which the parachute can fully inflate without generating excessive loads.

F. Airplane Attachment Harness (Refer to 95-01-01)

An aircraft harness system connects the parachute risers to the airplane primary structure. The CAPS aircraft harness consists of two forward harness straps attached to the firewall and a rear harness attached to the FS 222 bulkhead located directly in front of the parachute enclosure. The CAPS harness system is designed to control the pitch dynamics of the airplane during the deployment cycle by limiting the aft aircraft attachment harness length until the deployment cycle is complete.

The rear harness assembly has two sections of different length. The shorter section has a mechanical release mechanism that is activated by two pyrotechnic reefing line cutters. The fuses on these line cutters are initiated when the line cutter release pin is pulled when the harness is pulled taut during the extraction. After 8 seconds, the line cutters fire, the longer section of the rear harness takes over and the airplane assumes its touchdown attitude, approximately ten degrees nose down, to optimize occupant protection.

The release mechanism design is based on a 3-ring release mechanism. This system uses a series of metal rings routed through each other in a manner that provides a significant mechanical advantage. For the mechanism to be released, each link must rotate through its adjacent ring or link. The force necessary to hold the small link in its stowed position is considerably smaller than the force that is being applied as a result of the overall load on the mechanism. On the CAPS system the last link is held in place by a short length of nylon cord which is severed by the pyrotechnic reefing line cutters.
Figure 95-01-014
Parachute Assembly and Line Cutters
2. MAINTENANCE PRACTICES

Procedures and parts listed in this manual are reflective of Cirrus Design SR22 airplanes serial numbers 0210 and subsequent, and all prior airplanes incorporating Service Bulletin SB 22-95-05.

**WARNING:** CAPS must be serviced and maintained by Cirrus Design trained and authorized parachute system technicians only. Airframe and Powerplant license is not sufficient credentials for performing maintenance on CAPS.

Never activate CAPS on the ground. The rocket exits the fuselage with a velocity of 150 mph (240 km) in the first tenth of a second and reaches full extension in 2.5 seconds. People near the airplane may be injured and extensive damage to the airframe will occur. Ground activation will cause the airplane to be out of service until CAPS is replaced and the airframe repaired and inspected.

Rocket ignition will occur at temperature above 500° F (260° C). In the event of ground fire, use necessary precautions to avoid CAPS deployment.

FAA Type Certification for the airplane is contingent on a functional Cirrus Airframe Parachute System (CAPS). The airplane is not airworthy when CAPS is rendered inoperative.

**Note:** CAPS part identification and descriptions can be found in the Illustrated Parts List section of this manual.

A. Servicing - Cirrus Airframe Parachute System *(See Figure 95-01-015)*

1. Removal - Pyrotechnic Line Cutters Replacement
   a. Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrotechnic Line Cutter Replacement Kit</td>
<td>12020</td>
<td>Cirrus Design</td>
<td>Replacement</td>
</tr>
</tbody>
</table>

   b. Remove CAPS handle access cover and install CAPS handle safety pin
   c. Remove bulkhead 222 (BH 222) trim panel and carpet.
   d. Remove access panel CB7 from BH 222. (Refer to AMM 6-00)
   e. To prevent debris and components from falling into bottom of empennage, place catch cloth below rocket and parachute assembly.
   f. Pull open flaps secured with hook and loop to gain access to line cutters.
   g. Remove line cutter lanyard from D-ring and un-thread lanyard routed through line cutter's ignition loops.

   **WARNING:** When cutting nylon cord, ensure three-ring assembly stackup is not altered.

   h. Cut and remove nylon cord securing line cutters to link assembly.
   i. Remove line cutters from airplane and safely discard.

2. Installation - Pyrotechnic Line Cutters Replacement
   a. Ensure CAPS handle safety pin is installed.
   b. Verify three-ring release assembly is correct.
   c. Thread new nylon cord through mini-ring and pull cord ends equal.
   d. Thread nylon cord ends, through small link.
(e) Thread one end of nylon cord through installation hole on first new line cutter.
(f) Thread opposite end of nylon cord through installation hole on second new line cutter.

**Note:** Use a short, thin piece of wire wrapped around the nylon cord ends to facilitate routing the nylon cord through the rear harness sleeve.

(g) Wrap wire around nylon cord ends, insert wire into sleeve, and route cord through rear harness sleeve.
(h) Pull nylon cord completely through sleeve so mini-ring cinches up against top surface of small link.
(i) Position line cutters inside securing flaps and route nylon cord up, between link cutters.
(j) With one end of nylon cord make one complete loop around mini-ring.

**CAUTION:** Ensure no slack exists in nylon cord between rear harness sleeve and mini-ring and line cutter installation holes and small link.

(k) Cinch nylon cord tight.
(l) Tie CAPS knot:
   1. Cross upper cord end (end looped around mini-ring) over lower cord end twice. i.e. right over left, right over left.
   2. Cinch nylon cord tight.
   3. Tie standard Square Knot and cinch tight.
(m) Sew nylon cord ends together just below CAPS knot, tie off with CAPS knot.

**CAUTION:** Ensure trimmed ends of nylon cord do not interfere with line cutter's ignition loops.

(n) Trim nylon cord to 1.0 inch (2.5 cm).
(o) Route line cutter lanyard through line cutter's ignition loops and secure lanyard to D-ring.
(p) Close hook and loop securing flaps.
(q) Remove catch cloth from below rocket and parachute assembly.
(r) Install access panel CB7 to BH 222.
(s) Install BH 222 trim panel and carpet.
Sew nylon cord here.

With one end of nylon cord, make 360° loop around mini-ring.

Route nylon cords between line cutters.

Verify three-ring stackup as shown.

Sew nylon cord here.

**Figure 95-01-015**
Pyrotechnic Line Cutters Replacement (Sheet 1 of 2)
NOTE

Loop one end of thread around nylon cord.

Tie thread with CAPS knot.

Route line cutter lanyard through D-link.
B. CAPS Cover (See Figure 95-01-016)

(1) Removal - CAPS Cover

   (a) Acquire necessary tools, equipment, and supplies.

   (b) Remove CAPS handle access cover and install CAPS handle safety pin.

   (c) From aft edge of rear window and along airplane center line, measure 6.0 inches (15.2 cm) aft and mark the CAPS cover edge-seam location.

   **CAUTION:** Exercise caution when sanding composite surface to prevent sanding into laminate. Control dust migration.

   (d) Using die grinder and disc, at CAPS cover edge-seam reference mark, sand in a 0.5 inch (1.3 cm) area, and locate CAPS cover seam line. Sand around cover circumference following seam line to reveal entire perimeter of cover.

   **WARNING:** Use utmost care when working around embedded forward harness straps and lightning protection mesh with sharp tools. Failure to follow this WARNING could result in damage to CAPS system and failure upon deployment.

   **Note:** CAPS cover remnant may be used as an outline template to facilitate cover installation. Avoid unnecessary damage to remnant cover during removal.

   (e) Beginning at the aft, RH edge of cover seam line, carefully pry cover away from adhesive using a small chisel. Avoid scratching or denting fuselage with chisel. Work edge back until it is possible to slowly peel cover away from fuselage flange.

   (f) Remove cover remnant from airplane.

(2) Installation - CAPS Cover

   (a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
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<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>ScotchBrite Conditioning Disc</td>
<td>840332</td>
<td>Standard Abrasives Simi Valley, CA (805) 520-5800</td>
<td>Composite removal.</td>
</tr>
<tr>
<td>CAPS Cover</td>
<td>Reference Parts List</td>
<td>Cirrus Design</td>
<td>N/A</td>
</tr>
<tr>
<td>CAPS Warning Placard</td>
<td>Reference Parts List</td>
<td>Cirrus Design</td>
<td>Provide warning information.</td>
</tr>
<tr>
<td>ScotchBrite Conditioning Disc</td>
<td>840332</td>
<td>Standard Abrasives Simi Valley, CA (805) 520-5800</td>
<td>Composite removal.</td>
</tr>
<tr>
<td>Foam Tape 1/8” x 1/4”</td>
<td>93675K11</td>
<td>McMaster-Carr Atlanta, GA (404) 346-7000</td>
<td>Cover installation.</td>
</tr>
</tbody>
</table>
(b) Ensure CAPS handle safety pin is installed.
(c) Using plastic sheet and tape, protect CAPS assembly from dust and contaminants by lining opening of CAPS enclosure.

**CAUTION:** Exercise caution when sanding composite surface to prevent sanding into laminate. Control dust migration.

**WARNING:** Use utmost care when working around embedded forward harness straps and lightning protection mesh with sander. Failure to follow this WARNING could result in damage to CAPS system and failure upon deployment.

(d) Using die grinder and sanding disc, remove all remnant adhesive from fuselage flange, burnish lightning protection mesh, and abrade flange surface for adhesive application.
(e) Draw an offset line 0.25 inch (0.64 cm) from scribeline on new CAPS cover, and trim to offset line to facilitate trimming and fitting.
(f) Trim CAPS cover to fit, ensuring reinforced section of CAPS cover is located above CAPS rocket. Maximum gap between CAPS cover and fuselage is 0.10 inch (2.5 mm).
(g) Position CAPS cover to final fit and draw four reference lines across cover/fuselage seam line to facilitate installation.
(h) Install warning placard to inside surface of CAPS cover.
   1. Solvent clean CAPS cover surface where placard is to be installed. (Refer to AMM 20-30)
   2. Remove protective backing from placard using care not to contaminate adhesive surface.

### Parts List

<table>
<thead>
<tr>
<th>Description</th>
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<th>Supplier</th>
<th>Purpose</th>
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<tr>
<td>Plastic Sheet</td>
<td>-</td>
<td>Any Source</td>
<td>Cover installation.</td>
</tr>
<tr>
<td>American Tape Masking Tape</td>
<td>PG27</td>
<td>Any Source</td>
<td>Cover installation.</td>
</tr>
<tr>
<td>Mixing Cup</td>
<td>-</td>
<td>Any Source</td>
<td>Mix resin system.</td>
</tr>
<tr>
<td>Tongue Depressor Type Mixing Stick/Applicator</td>
<td>-</td>
<td>Any Source</td>
<td>Mix resin system.</td>
</tr>
<tr>
<td>Scale</td>
<td>18605T84</td>
<td>McMaster-Carr Atlanta, GA (404) 346-7000</td>
<td>Weighing.</td>
</tr>
<tr>
<td>Epon 862</td>
<td>50013-101</td>
<td>Cirrus Design</td>
<td>Base resin.</td>
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<tr>
<td>Heloxy 68</td>
<td>50013-301</td>
<td>Cirrus Design</td>
<td>Modifier.</td>
</tr>
<tr>
<td>Epicure 3234</td>
<td>50013-201</td>
<td>Cirrus Design</td>
<td>Hardener.</td>
</tr>
<tr>
<td>Aerosil</td>
<td>50009-301</td>
<td>Cirrus Design</td>
<td>Filler1.</td>
</tr>
<tr>
<td>Sil-Cell</td>
<td>50009-401</td>
<td>Cirrus Design</td>
<td>Filler2.</td>
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<tr>
<td>Scotch® Filament Tape</td>
<td>893</td>
<td>Any Source</td>
<td>Cover installation.</td>
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**Solvents**

- Heloxy 68: 50013-301, Cirrus Design, Modifier.
- Scotch® Filament Tape: 893, Any Source, Cover installation.

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**Suppliers**

- American Tape Masking Tape
- Mixing Cup
- Tongue Depressor Type Mixing Stick/Applicator
- Scale 18605T84, McMaster-Carr Atlanta, GA (404) 346-7000
- Scotch® Filament Tape
- Epon 862
- Heloxy 68
- Epicure 3234
- Aerosil
- Sil-Cell
- Scotch® Filament Tape

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**Description**

- Plastic Sheet
- American Tape Masking Tape
- Mixing Cup
- Tongue Depressor Type Mixing Stick/Applicator
- Scale
- Epon 862
- Heloxy 68
- Epicure 3234
- Aerosil
- Sil-Cell
- Scotch® Filament Tape

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**P/N or Spec.**

- 50013-101
- 50013-301
- 50013-201
- 50009-301
- 50009-401
- 893
- Any Source
- 18605T84

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**Supplier**

- Cirrus Design
- Any Source
- McMaster-Carr Atlanta, GA (404) 346-7000

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**Purpose**

- Cover installation.
- Cover installation.
- Mix resin system.
- Mix resin system.
- Weighing.
- Base resin.
- Modifier.
- Hardener.
- Filler1.
- Filler2.
- Cover installation.
3. Place one edge of placard on surface and work downward to eliminate wrinkles and air pockets. Avoid stretching decal as poor adhesion will result.

4. Press decal firmly to surface with fingers or rubber roller. Ensure all edges are firmly adhered.

**WARNING:** The CAPS cover is secured with a low strength bond which allows the rocket to more easily detach the cover when extracting the parachute. An improper bond could prevent proper parachute extraction and system failure upon deployment.

(i) Solvent clean fuselage flange and CAPS cover. (Refer to AMM 20-30)

**Note:** Foam tape should be same height as fuselage. It may be necessary to build up tape in sections where tape to fuselage height is not equal.

(j) Offset and apply foam tape 0.50 ±0.13 inches (1.27 ±0.33 cm) around inside perimeter of CAPS enclosure flange.

(k) Mix adhesive components in the following manner:

**Note:** Pot life of adhesive at 70.0° F (21.1° C) is approximately 35 to 45 minutes.

**CAUTION:** Thorough mixing is essential to achieve a proper cure. Mix components until a homogeneous appearance is achieved. Ensure incorporation of all materials along walls and bottom of mixing cup.

**WARNING:** Do not mix modifier (Heloxy 68) directly into hardener (Epicure 3234), as violent chemical reaction may occur.

Keep adhesive materials away from sources of ignition.

Mix and use adhesive materials only in areas with adequate ventilation.

Wear protective gloves, goggles, and respirator when handling adhesives and solvents.

1. Zero scale.

2. Place mixing cup on scale and tare cup weight.

3. Measure 55.0 gm of base resin (Epon 862) into mixing cup.

4. Measure 5.0 gm of modifier (Heloxy 68) and add to base resin. Mix material thoroughly.

5. Measure 8.5 gm of hardener (Epicure 3234) and add to resin/modifier mixture. Mix material thoroughly.

6. Mix 4.7 gm of Filler1 (Aerosil) with 5.3 gm Filler2 (Sil-Cell).

7. Add Filler1/Filler2 mixture to resin/modifier/hardener mixture. Mix adhesive thoroughly.

(l) With applicator stick, fill 0.50 inch (1.3 cm) gap between foam tape and perimeter of enclosure with adhesive.

(m) Squeegee off excess adhesive flush with foam tape and top of fuselage.

(n) Position cover over CAPS enclosure, orient cover using reference lines, and gently press into place.

(o) Secure cover to fuselage in the following manner:
Note: To prevent cover deformation and generation of air pockets in adhesive, tape CAPS cover to fuselage with two people working on either side of airplane.

1. For RH and LH sides, cut 10, two-foot strips of filament tape and make ready for quick-use by lightly hanging each piece to the leading edge of horizontal stabilizer.

   **WARNING:** Apply constant pressure to cover while taping. Do not apply and release pressure as air pockets will develop in adhesive. If additional pressure is necessary, first apply pressure to tape strand on cover, then release tape tension and reset tape.

2. Working from center to aft then center to forward, apply tape to cover and press down slightly on cover while setting tape so that top surface of cover is flush with fuselage.

   **WARNING:** Ensure nominal bondline of 0.080 - 0.005 inch (2.03 - 0.13 mm).

3. Ensure adhesive is devoid of air pockets. Inspect bond line for voids or high spots. Clean any adhesive that squeezes out.
   
   (p) Through access cover CB7, remove tape and plastic sheet. Inspect and clean enclosure for any spilled adhesive or debris.
   
   (q) Utilizing Heated Air Cure methods, fully cure adhesive for 1 hour at 140° F (60° C). (Refer to AMM 51-20)
   
   (r) Fill, seal, and paint CAPS cover enclosure. (Refer to AMM 53-30)
   
   (s) Install CAPS cover placard. (Refer to AMM 11-20)
Figure 95-01-016
CAPS Cover Installation

NOTE
⚠️ Wipe away over-squeeze.
⚠️ Feather adhesive to fuselage contour.
⚠️ Reinforced cover section.

TYPICAL CROSS SECTION

Serials 0002 thru 0820.

LEGEND
1. Tape
2. CAPS Cover
3. Foam Tape
4. Warning Placard (inside surface)

DETAIL A

Serials 0821 & subs.
TYPICAL CROSS SECTION
C. CAPS Rocket Assembly (See Figure 95-01-017)

(1) Removal - CAPS Rocket Assembly
   (a) Remove key from ignition.
   (b) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.

   **CAUTION:** Ensure hands are clean while working with interior trim components.

   (c) Remove CAPS handle access cover and install CAPS handle safety pin.
   (d) Remove bulkhead 222 (BH 222) trim panel and carpet. (Refer to AMM 25-10)
   (e) Remove access panel CB7 from BH 222. (Refer to AMM 6-00)
   (f) To prevent debris and components from falling into bottom of empennage, place catch cloth below rocket and parachute assembly.

   **WARNING:** Activation of rocket igniter requires 25 lb (11.25 kg) pull force. Use caution during removal, modification, and installation procedures to not introduce any unnecessary pulling force on the activation cable.

   Always position rocket in a safe direction while handling the CAPS rocket assembly.

   (g) Disconnect activation cable from rocket.

   1. **Serials 0002 thru 1840:** Remove access hole plug from rocket cone.
   2. Remove screw and washer securing activation cable to firing pin actuator.
   3. Unscrew activation cable cone adapter from rocket cone.

   **WARNING:** Due to differing tolerances between the rocket assembly shelves, quantities of shims/washers may differ from those depicted in the figures. Ensure the exact stackup of the attaching hardware is noted during disassembly and then replicated during reassembly. Failure to do so may result in an incorrect rocket installation and subsequent deployment failure.

   **CAUTION:** Do not snag rocket assembly on parachute or surrounding structure while removing.

   (h) **Serials 0002 thru 0820:** Perform Procedure - CAPS Rocket Assembly Removal.

   1. Remove grommet securing activation cable to rocket shield slot.
   2. While supporting rocket assembly, remove bolts and washers securing shim, backing plate, and rocket assembly to BH 222.

   (i) **Serials 0821 thru 1840:** Perform Procedure - CAPS Rocket Assembly Removal.

   1. Remove bolts, washers, and nuts securing rocket assembly bracket to BH 222 cross beam.
   2. Remove bolts and washers securing cross beam to BH 222.
   3. While supporting rocket assembly, remove bolts and washers securing rocket assembly to CAPS compartment.

   (j) **Serials 1841 & subs:** Perform Procedure - CAPS Rocket Assembly Removal.

   1. While supporting rocket assembly, remove bolts and washers securing rocket assembly to BH 222 cross beam.

   (k) To facilitate rocket assembly removal, move CAPS harness to either side and carefully pull spiral wrap cable from adjustable bushing pass-through hole as required.

   (l) Carefully slide rocket assembly from behind BH 222 so that top of rocket assembly is exposed.
(m) **Serials 0821 & subs:** Remove BH 222 upper access panel.
   1. At upper access panel on BH 222, push pins from back side of plastic inserts securing upper access panel to BH 222.
   2. Use pliers to pull pins from forward side of plastic inserts until inserts are disengaged.
   3. Remove upper access panel from BH 222.

(n) Remove tension screws securing pick-up collar assembly to rocket launch tube.

**CAUTION:** Pick-up collar assembly should slide freely off rocket. If interference between launch tube and pick-up collar assembly exists, contact Cirrus Design for disposition.

(o) Carefully slide pick-up collar assembly off of rocket.

(p) Remove rocket assembly from airplane.

(2) **Disassembly - CAPS Rocket Assembly**

(a) Remove screws securing rocket cone to rocket motor igniter. Slide rocket cone off of rocket motor igniter.

(b) **Serials 0002 thru 0820:** Remove screws and washers securing rocket motor to rocket shelf and slide rocket shelf off of rocket motor.

(c) **Serials 0002 thru 0820:** Slide rocket shield off of rocket motor.

(d) **Serials 0821 thru 1840:** Remove bolts and washers securing rocket motor to rocket shelf assembly and slide rocket shelf assembly off of rocket motor.

(e) **Serials 1841 & subs:** Remove screws and washers securing rocket motor to rocket shelf assembly and slide rocket shelf assembly off of rocket motor.

(f) Safety the rocket motor by wiring firing pin actuator to rocket motor igniter body.

(g) Store rocket in clean, dark, and dry environment.

(h) Remove countersunk screws securing existing pick-up collar support to pick-up collar.

(i) Press retaining groove on pick-up collar support toward the rocket lanyard. Use fingers to pry rocket lanyard from opposite retaining groove and pivot the pick-up collar support until lanyard is disengaged from retaining grooves.

(j) Inspect inner diameter of pick-up collar for surface irregularities (bump). If any bumps exist, perform Adjustment/Test - Inner Diameter Surface Irregularity.

(3) **Reassembly - CAPS Rocket Assembly**

(a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threadlock</td>
<td>Loctite 222</td>
<td>Any Source</td>
<td>Bond screws.</td>
</tr>
<tr>
<td>Threadlock</td>
<td>Loctite 242</td>
<td>Any Source</td>
<td>Bond screws.</td>
</tr>
</tbody>
</table>

**WARNING:** Position rocket lanyard around top outer diameter of pick-up collar support, **NOT over top of the rocket.** Failure to comply will absolutely FAIL rocket deployment!

(b) Position pick-up collar support to upper side of pick-up collar.

(c) Position retaining groove of pick-up collar support to rocket lanyard. Pivot pick-up collar support until the rocket lanyard engages the opposite retaining groove.

**Note:** It is permissible to re-use countersunk screws if no visible damage exists.
(d) Inspect countersunk screws removed previously from pick-up collar for damage. Replace countersunk screws as required.
(e) Apply threadlock 242 to countersunk screws removed previously from pick-up collar.
(f) Install countersunk screws securing pick-up collar support to pick-up collar.

**WARNING:** Firing pin actuator safety wire must be removed to install rocket shield and shelf.

(g) Remove safety wire securing firing pin actuator to rocket motor igniter body.
(h) **Serials 0002 thru 0820:** Install rocket shield and shelf.
   1. Slide rocket shield over rocket motor and position shield to rocket motor screw holes.
   2. Slide rocket shelf over rocket motor and position shelf to rocket motor screw holes.
   3. Install screws and washers securing shelf and shield to motor and safety wire.
(i) **Serials 0821 & subs:** Install rocket shelf assembly.
   1. Slide rocket shelf assembly over rocket motor and position shelf to rocket motor screw holes.
   2. **Serials 0821 thru 1840:** Install bolts and washers securing shelf assembly to motor and safety wire.
   3. **Serials 1841 & subs:** Install screws and washers securing shelf assembly to motor and safety wire.
(j) Ensure firing pin actuator is rotated so threaded side of actuator is facing aft and screw head attaching activation cable to firing pin actuator will be visible through rocket cone inspection hole when installed.
(k) Apply threadlock 222 to screws used to secure rocket cone to rocket motor igniter.
(l) **Serials 0821 thru 1840:** Install bolts and washers securing shelf assembly to motor and safety wire.
(4) **Serials 1841 & subs:** Install screws and washers securing shelf assembly to motor and safety wire.

**CAUTION:** Ensure the exact stackup of the attaching hardware, noted during disassembly, is replicated during reassembly.

(a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPS Rocket Assembly</td>
<td>Reference Parts List</td>
<td>Cirrus Design</td>
<td>N/A</td>
</tr>
<tr>
<td>Threadlock</td>
<td>Loctite 222</td>
<td>Any Source</td>
<td>Bond screws.</td>
</tr>
<tr>
<td>Threadlock</td>
<td>Loctite 242</td>
<td>Any Source</td>
<td>Bond screws.</td>
</tr>
</tbody>
</table>

(b) Ensure CAPS handle safety pin is installed.
(c) Record rocket serial number in airplane log book.
(d) Slide pick-up collar assembly onto rocket.
(e) Verify pick-up collar assembly slides freely on rocket.
(f) Verify anchor blocks are perpendicular to pick-up collar assembly. If pick-up collar assembly is not fully seated against the anchor blocks, use pliers to gently adjust anchor blocks as required.

**CAUTION:** If anchor blocks require re-alignment, after adjustment, inspect anchor block security. If anchor blocks are loose, contact Cirrus Design for disposition.
(g) Verify rocket alignment is centered inside launch tube.
(h) Apply threadlock 242 to aluminum tension screws.

**CAUTION:** Do not overtighten aluminum tension screws.

(i) Install aluminum tension screws securing pick-up collar assembly to rocket launch tube using nut driver. Tighten aluminum tension screws until snug.
(j) Verify rocket extends beyond upper end of pick-up collar support.
(k) Verify pickup collar assembly is properly seated to the anchor blocks.
(l) Verify rocket lanyard is engaged with the retaining grooves on the pickup collar assembly.
(m) At the top of the parachute assembly, locate and feed the lanyard aft, towards the stowage pocket in the parachute assembly, to facilitate initial recoiling of lanyard.

**CAUTION:** Ensure the exact stackup of the attaching hardware, noted during disassembly, is replicated during reassembly.

Ensure lanyard does not wrap around forward portion of launch tube.
Do not snag rocket assembly on parachute or surrounding structure while installing.

(n) **Serials 0002 thru 0820:** Install CAPS rocket assembly.
   1. Position and secure rocket assembly, shim, and backing plate to BH 222 with bolts and washers.
   2. Verify activation cable is routed through shield slot and secured with cable grommet.

(o) **Serials 0821 thru 1840:** Install CAPS rocket assembly.

**Note:** To facilitate rocket assembly installation, place rocket assembly inside access panel CB7 on BH 222 prior to cross beam installation.

   1. Position rocket assembly in access panel CB7.
   2. Install bolts and washers securing cross beam to BH 222.
   3. Position and secure rocket assembly to CAPS compartment with bolts and washers.
   4. Install bolts, washers, and nuts securing rocket assembly bracket to BH 222 cross beam.

(p) **Serials 1841 & subs:** Install CAPS rocket assembly.
   1. Position and secure rocket assembly to BH 222 cross beam with bolts and washers.

**WARNING:** Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.

(q) Verify minimum gap of 0.40 inch (10.16 mm) exists between outer diameter of pick-up collar and aft side of BH 222.

(r) Connect activation cable to rocket.
   1. Ensure firing pin actuator is rotated so threaded side of actuator is facing aft and screw head attaching activation cable to firing pin actuator will be visible through rocket cone inspection hole when installed.
   2. Apply threadlock 222 to screws used to secure rocket cone to rocket motor igniter.
   3. Position and secure rocket cone onto rocket motor igniter with screws.
   4. Apply threadlock 222 to screw used to secure activation cable to firing pin actuator.
   5. Insert cable loop into firing pin actuator slot on rocket motor igniter and using a magnetized screwdriver, install screw and washer to firing pin actuator slot.
**WARNING:** Activation of rocket igniter requires 25 lb (11.25 kg) pull force. The following verification is meant only to ensure firing pin capture. A very slight pull force of 0.25 lb (0.113 kg) is all that is required to verify capture.

6. Slightly pull cable projecting from rocket motor assembly base to verify firing pin capture.

7. Screw activation cable cone adapter to rocket cone.

8. **Serials 0002 thru 1840:** Install access hole plug to rocket cone.

(s) Feed remaining lanyard aft until slack is removed and the lanyard is coiled back into the stowage pocket in the parachute assembly. Ensure lanyard does not wrap around forward portion of launch tube and lanyard coil in the stowage pocket is not twisted.

**WARNING:** Verify rocket lanyard is positioned around top outer diameter of pick-up collar support, NOT over top of the rocket. Failure to comply will absolutely FAIL rocket deployment!

(t) Verify rocket lanyard is positioned around top outer diameter of pick-up collar support.

(u) Carefully feed spiral wrap cable into adjustable bushing pass-through hole until slack is removed.

(v) Reposition CAPS harness.

(w) Remove catch cloth from below rocket and parachute assembly.

(x) Using a vacuum cleaner, remove all debris from fuselage floor.

(y) Visually inspect CAPS compartment for security, leaks, loose or missing hardware, moisture, and general condition.

(z) **Serials 0821 & subs:** Install BH 222 upper access panel.

1. Position and secure upper access panel to BH 222 with plastic inserts.

2. Push pins into plastic inserts to engage fasteners.

(aa) Install access panel CB7 to BH 222. (Refer to AMM 6-00)

(ab) Install BH 222 trim panel and carpet. (Refer to AMM 25-10)

5. **Adjustment/Test - Inner Diameter Surface Irregularity**

(a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half-Round File</td>
<td>-</td>
<td>Any Source</td>
<td>Remove bumps.</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>TT-I-735 Grade A or B</td>
<td>Any Source</td>
<td>Clean installation area.</td>
</tr>
<tr>
<td>Cotton Cloth (clean and lint free)</td>
<td>-</td>
<td>Any Source</td>
<td>Clean installation area.</td>
</tr>
<tr>
<td>Primer</td>
<td>(Refer to AMM 51-30)</td>
<td>Any Source</td>
<td>Seal.</td>
</tr>
</tbody>
</table>

(b) Use half-round file as required to remove bumps.

(c) Solvent clean with isopropyl alcohol. (Refer to AMM 20-30)

(d) Apply primer to affected area.
Ensure lanyard does not wrap around forward portion of launch tube.

0.40 inch (10.16 mm)

Due to differing tolerances between the rocket assembly shelves, quantities of shims/washers may differ from those depicted in the figure. Ensure the exact stackup of the attaching hardware is noted during disassembly and then replicated during reassembly. Failure to do so may result in an incorrect rocket installation and subsequent deployment failure.

Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.

Ensure lanyard does not wrap around forward portion of launch tube.

To facilitate rocket assembly removal, move CAPS harness to either side and carefully pull spiral wrap cable from adjustable bushing pass-through hole as required.

NOTE

⚠️ Position rocket lanyard around top outer diameter of pick-up collar support, NOT over top of the rocket. Failure to comply will absolutely FAIL rocket deployment!

⚠️ Due to differing tolerances between the rocket assembly shelves, quantities of shims/washers may differ from those depicted in the figure. Ensure the exact stackup of the attaching hardware is noted during disassembly and then replicated during reassembly. Failure to do so may result in an incorrect rocket installation and subsequent deployment failure.

⚠️ Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.

⚠️ Ensure lanyard does not wrap around forward portion of launch tube.

⚠️ To facilitate rocket assembly removal, move CAPS harness to either side and carefully pull spiral wrap cable from adjustable bushing pass-through hole as required.

LEGEND
1. Bolt
2. Washer
3. Backing Plate
4. Shim
5. Rocket Assembly
6. Rocket Lanyard
7. Grommet
8. Spiral Wrap

Figure 95-01-017
CAPS Rocket Assembly - Serials 0002 thru 0820 (Sheet 1 of 6)
Verify anchor blocks are perpendicular to pick-up collar assembly. If pick-up collar assembly is not fully seated against the anchor blocks, use pliers to gently adjust anchor blocks as required.

Position inspection hole on rocket cone so that hole faces forward once installed.

Apply threadlocker 222 to screws.

Apply threadlocker 242 to screws.

NOTE

Apply threadlocker 222 to screws.

Apply threadlocker 242 to screws.

Do not overtighten aluminum tension screws. Tighten aluminum tension screws until snug.

Verify anchor blocks are perpendicular to pick-up collar assembly. If pick-up collar assembly is not fully seated against the anchor blocks, use pliers to gently adjust anchor blocks as required.

Position retaining groove of pick-up collar support to rocket lanyard. Pivot pick-up collar support until the rocket lanyard engages the opposite retaining groove.

Position rocket lanyard around top outer diameter of pick-up collar support, NOT over top of the rocket. Failure to comply will absolutely FAIL rocket deployment!

To comply will absolutely FAIL rocket deployment!

Serials 0002 thru 0820.

Figure 95-01-017
CAPS Rocket Assembly - Serials 0002 thru 0820 (Sheet 2 of 6)
Figure 95-01-017
CAPS Rocket Assembly - Serials 0821 thru 1840 (Sheet 3 of 6)

NOTE

⚠️ Position rocket lanyard around top outer diameter of pick-up collar support, NOT over top of the rocket. Failure to comply will absolutely FAIL rocket deployment!

⚠️ Due to differing tolerances between the rocket assembly shelves, quantities of shims/washers may differ from those depicted in the figure. Ensure the exact stackup of the attaching hardware is noted during disassembly and then replicated during reassembly. Failure to do so may result in an incorrect rocket installation and subsequent deployment failure.

⚠️ Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.

⚠️ Ensure lanyard does not wrap around forward portion of launch tube.

⚠️ To facilitate rocket assembly removal, move CAPS harness to either side and carefully pull spiral wrap cable from adjustable bushing pass-through hole as required.

Serials 0821 thru 1840.

LEGEND

1. Bolt
2. Washer
5. Rocket Assembly
6. Rocket Lanyard
20. Cross Beam
21. Nut
22. Bracket

SR22_CM95_1967A
Position inspection hole on rocket cone so that hole faces forward once installed.

Position retaining groove of pick-up collar support to rocket lanyard. Pivot pick-up collar support until the rocket lanyard engages the opposite retaining groove.

Do not overtighten aluminum tension screws. Tighten aluminum tension screws until snug.

Verify anchor blocks are perpendicular to pick-up collar assembly. If pick-up collar assembly is not fully seated against the anchor blocks, use pliers to gently adjust anchor blocks as required.

Position retaining groove of pick-up collar support to rocket lanyard. Pivot pick-up collar support until the rocket lanyard engages the opposite retaining groove.

Apply threadlocker 222 to screws.

Apply threadlocker 242 to screws.

NOTE

Failure to comply will absolutely FAIL rocket deployment!

Apply threadlocker 222 to screws.

Apply threadlocker 242 to screws.

Serials 0821 thru 1840.
Position rocket lanyard around top outer diameter of pick-up collar support, NOT over top of the rocket. Failure to comply will absolutely FAIL rocket deployment!

Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.

Ensure lanyard does not wrap around forward portion of launch tube.

To facilitate rocket assembly removal, move CAPS harness to either side and carefully pull spiral wrap cable from adjustable bushing pass-through hole as required.

Figure 95-01-017
CAPS Rocket Assembly - Serials 1841 & subs (Sheet 5 of 6)


**NOTE**

⚠️ Position rocket lanyard around top outer diameter of pick-up collar support, NOT over top of the rocket. Failure to comply will absolutely FAIL rocket deployment!

⚠️ Do not overtighten aluminum tension screws. Tighten aluminum tension screws until snug.

⚠️ Verify anchor blocks are perpendicular to pick-up collar assembly. If pick-up collar assembly is not fully seated against the anchor blocks, use pliers to gently adjust anchor blocks as required.

⚠️ Position retaining groove of pick-up collar support to rocket lanyard. Pivot pick-up collar support until the rocket lanyard engages the opposite retaining groove.

⚠️ Position inspection hole on rocket cone so that hole faces forward once installed.

⚠️ Apply threadlocker 222 to screws.

⚠️ Apply threadlocker 242 to screws.

---

**Figure 95-01-017**

CAPS Rocket Assembly - Serials 1841 & subs (Sheet 6 of 6)
D. CAPS Parachute Assembly

(1) Removal - CAPS Parachute Assembly

(a) Serials 0002 thru 0820: Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuselage Saddle</td>
<td>TBD</td>
<td>Cirrus Design</td>
<td>Facilitate installation.</td>
</tr>
</tbody>
</table>

(b) Remove CAPS handle access cover and install CAPS handle safety pin.
(c) Remove CAPS Rocket Assembly. (Refer to 95-01)
(d) Serials 0002 thru 0820: Remove CAPS Cover. (Refer to 95-01)
(e) Remove bolts, washers, and nuts securing aft harness bracket to 222 bulkhead.
(f) At baggage compartment, reach through access hole CB6, unfasten hook and loop securing retaining straps, loosen, and remove straps from buckles.
(g) Pull retaining straps free from CAPS enclosure.

**CAUTION:** Do not attempt to lift or carry parachute assembly by rear harness or rocket lanyards. For lifting, use 1-inch wide retaining strap handles sewn to top of parachute assembly.

(h) Serials 0002 thru 0820: Lift parachute assembly through top of CAPS enclosure and place on saddle, laying assembly with three point shackles facing up, and top of pack facing aft.
(i) Remove spacers, bolts, washers, and nuts securing forward harness straps to parachute assembly three-point shackles.
(j) Serials 0821 & subs: Pull parachute assembly through access hole CB7 on 222 bulkhead, laying assembly on fuselage floor with three point shackles facing up, and top of pack facing aft.
(k) Remove parachute assembly from airplane and store in clean, dark, and dry environment.

(2) Installation - CAPS Parachute Assembly

(a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPS Parachute Assy</td>
<td>Reference Parts List</td>
<td>Cirrus Design</td>
<td>N/A</td>
</tr>
<tr>
<td>Serials 0002 thru 0820: Fuselage Saddle</td>
<td>TBD</td>
<td>Cirrus Design</td>
<td>Facilitate installation.</td>
</tr>
</tbody>
</table>

**CAUTION:** Do not attempt to lift or carry parachute assembly by rear harness or rocket lanyards. For lifting, use 1-inch wide retaining strap handles sewn to top of parachute assembly.

(b) Ensure CAPS handle safety pin is installed.
(c) Record serial numbers and expiration dates from top flap of parachute in airplane log book.
(d) Serials 0002 thru 0820: Lift parachute assembly onto saddle, laying assembly with three point shackles facing up, and top of pack facing aft.
(e) Serials 0821 & subs: At 222 bulkhead, lay parachute assembly on fuselage floor with three point shackles facing up, and top of pack facing aft.
(f) Unfasten hook and loop securing retaining straps around buckles and route straps forward towards CAPS enclosure.

(g) Remove any shipping string securing rear harness bracket and rocket lanyard to parachute assembly.

**CAUTION:** Ensure forward harness is not twisted before attaching to three-point shackle. Route harness so harness surface facing out at fuselage is facing away from parachute assembly.

Do not pinch harness between spacer and three-point buckle.

(h) *Serials 0002 thru 0820:* Install bolts, spacers, washers, and nuts securing forward harness straps to parachute assembly three-point shackles. Install nuts on inboard side of shackles. Torque nuts to 95 - 105 in-lbs (10.5 - 11.5 Nm).

**CAUTION:** Forcing parachute assembly into enclosure can prevent proper deployment. If parachute assembly does not easily slide into enclosure, inspect parachute assembly and enclosure to determine source of obstruction.

(i) *Serials 0002 thru 0820:* Lower parachute assembly through CAPS cover opening and into CAPS enclosure.

(j) *Serials 0821 & subs:* Insert parachute assembly into CAPS enclosure.

1. Partially insert top of parachute assembly through access panel CB7 on 222 bulkhead.
2. Continue to insert parachute assembly into enclosure until bottom of parachute assembly clears bottom edge of enclosure.
3. Lift parachute assembly up until entire back of parachute assembly lies flat against back of enclosure.
4. Allow parachute assembly to drop down into position.

**CAUTION:** Ensure forward harness is not twisted before attaching to three-point shackle. Route harness so harness surface facing out at fuselage is facing away from parachute assembly.

Do not pinch harness between spacer and three-point buckle.

(k) *Serials 0821 & subs:* Install bolts, spacers, washers, and nuts securing forward harness straps to parachute assembly three-point shackles. Install nuts on inboard side of shackles. Torque nuts to 95 - 105 in-lbs (10.5 - 11.5 Nm).

(l) Route parachute assembly retaining straps into upper slots of CAPS enclosure to facilitate installation.

**CAUTION:** Ensure retaining straps are not twisted during installation.

(m) From baggage compartment, reach through access hole CB6 and route retaining straps up, through bottom enclosure slots.

(n) Route retaining straps up, along parachute assembly, through buckle, over clasp, back through buckle, and cinch tight.

**CAUTION:** Do not overtighten straps to point of overshooting and misaligning hook and loop sewn to strap ends.
(o) Using a large, blunt, flat bladed screwdriver, further tighten retaining straps by inserting screwdriver head into strap-end pocket and applying down force. Secure strap with hook and loop sewn to strap ends.

**CAUTION:** Ensure blast-shield sleeve, sheathing the aft harness, is tucked behind 10° bend in top of bracket before tightening bolts securing aft harness bracket to 222 bulkhead.

(p) Position aft harness bracket to 222 bulkhead so 10° bend in top of bracket faces away from bulkhead and install bolts, washers, and nuts. Torque bolts to 330 - 370 in lbs (36.3 - 40.7 Nm).

(q) *Serials 0002 thru 0820:* Install CAPS Cover. (Refer to 95-01)

(r) Install CAPS Rocket Assembly. (Refer to 95-01)
E. CAPS Activation Handle and Cable Assembly (See Figure 95-01-018), (See Figure 95-01-019)

(1) Removal - CAPS Activation Handle and Cable Assembly
   (a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telescoping Magnet</td>
<td>-</td>
<td>Any Source</td>
<td>Retrieval.</td>
</tr>
<tr>
<td>Small Knife</td>
<td>-</td>
<td>Any Source</td>
<td>Facilitate removal of attach screws.</td>
</tr>
</tbody>
</table>

   (b) Remove CAPS handle access cover and install CAPS handle safety pin

   **CAUTION:** Ensure hands are clean while working with headliners and trim pieces.

   (c) Remove BH 222 trim panel and carpet.
   (d) Remove access panels CB6 and CB7 from BH 222.
   (e) To prevent debris and components from falling into bottom of empennage, place catch cloth below rocket and parachute assembly.
   (f) Remove LH rear headliner. (Refer to AMM 25-10)
   (g) If applicable, remove fasteners securing cabin headliner to fuselage.
   (h) Remove LH and RH cabin flood light assemblies. (Refer to AMM 33-10)
   (i) Pull LH door seal away from top edge of door frames.
   (j) If applicable, slit tape securing LH headliner to door frame.
   (k) Remove LH B-pillar trim. (Refer to AMM 25-10)
   (l) Gently pull LH portion of cabin headliner down from ceiling to gain access to CAPS activation cable.
   (m) Remove CAPS Rocket Assembly. (Refer to 95-01)
   (n) Remove grommet securing activation cable to cable pass-through hole in CAPS enclosure.

   **Note:** To facilitate screw removal, push attaching screws up to break filler covering screw heads and use a small knife to remove remaining filler.

   (o) At CAPS activation handle, remove nuts, washers, bushings, and screws securing activation handle and cable assembly to fuselage.
   (p) Locate, cut, and remove all cable ties securing activation cable to the fuselage ceiling.
   (q) Remove aluminum tape securing CAPS activation cable to fuselage ceiling.
   (r) Remove CAPS activation cable from airplane.

(2) Installation - CAPS Activation Handle and Cable Assembly

   (a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPS Activation Handle and Cable Assembly</td>
<td>15047-003</td>
<td>Cirrus Design</td>
<td>CAPS activation.</td>
</tr>
<tr>
<td>Airtech Teflon Tape, 1-inch</td>
<td>Teflease MG2A</td>
<td>Airtech International</td>
<td>Sealing.</td>
</tr>
</tbody>
</table>
<pre><code>                 |              | Huntington Beach, CA 92647| (714) 899-8100                        |
</code></pre>
(b) Ensure CAPS handle safety pin is installed.
(c) Position activation cable handle bracket over mounting holes and secure to fuselage ceiling installing new screws, washers, and nuts. Torque to 15.0 - 20.0 inch-pounds (1.7 - 2.2 Nm).
(d) Fill, prime and paint screw holes.
(e) Install grommet to cable pass-through hole in CAPS enclosure.

Note: If Stormscope or Skywatch installed, route activation cable above antenna cables.

(f) Route activation cable aft, through improved BH 222 cable pass-through and up through LH cable pass-through hole in CAPS enclosure.
(g) Loosely attach activation cable to forward and middle cable tie anchors with cable ties.
(h) **Serials 0002 thru 0820:** Ensure activation cable is routed through shield slot, install cable grommet, and secure with silicon sealant.
(i) Between middle and aft cable ties, solvent clean with isopropyl alcohol and apply two-sided tape primer 3.0 inches (7.6 cm) either side of activation cable routing leaving the last three inch section, just forward of aft cable tie anchor, uncovered.
(j) Loosely attach activation cable to aft cable tie anchor with a cable tie.

**CAUTION:** Verify activation cable routing is correct, is free and clear of other components, and activation cable does not contact edges of improved BH 222 cable pass-through hole. Install CAPS routing placards along new cable route.

(k) Cut aluminium tape into three sections and install aluminium tape over activation cable leaving the last three inch section of activation cable, just forward of aft cable tie anchor, uncovered.
(l) Install spiral wrap to forward portion of activation cable so that cable will not chafe on speaker or antenna installations.
(m) Install spiral wrap to aft portion of activation cable behind BH 222 so that cable will not chafe on static lines or BH 222 cable pass-through hole.
(n) Perform Operational Check - CAPS Activation Handle & Cable Assembly. (Refer to 95-01)
(o) Install CAPS Rocket Assembly. (Refer to 95-01)
(p) Position cabin headliner to ceiling and install CAPS handle recess trim.
(q) Install LH B-pillar trim.
(r) Install tape securing headliner to door frame.
(s) Install LH and RH door seal to top edge of door frames.
(t) Install LH and RH cabin flood light assemblies.
(u) Install LH rear headliner.
(v) Remove catch cloth from below rocket and parachute assembly.
(w) Install access panels CB6 and CB7 from BH 222.
(x) Install BH 222 trim panel and carpet.

(3) **Operational Check - CAPS Activation Handle and Cable Assembly**

**CAUTION:** The CAPS Activation Cable Test Fixture must be returned to Cirrus Design for calibration after 30 test pulls. Before performing inspection verify the calibration log is current.
(a) Acquire necessary tools, equipment, and supplies.

<table>
<thead>
<tr>
<th>Description</th>
<th>P/N or Spec.</th>
<th>Supplier</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPS Activation Cable</td>
<td>T10183</td>
<td>Cirrus Design</td>
<td>Testing.</td>
</tr>
<tr>
<td>Test Fixture</td>
<td></td>
<td></td>
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</tbody>
</table>

(b) Insert activation cable loop into test fixture tube and position cable over test fixture hook.
(c) Screw activation cable cone adapter to test fixture.
(d) **Serials 0002 thru 0820:** Remove knurled nuts securing adapter plate to test fixture.
(e) **Serials 0002 thru 0820:** Position test fixture to inboard CAPS rocket assembly mounting holes on BH 222 and secure with knurled nuts.
(f) **Serials 0821 & subs:** Position test fixture to LH upper inboard CB7 mounting holes (below cross beam) on BH 222. Engage BH 222 nutplates with threaded studs and secure with wing nuts.
(g) Route test fixture wiring forward to passenger seat.
(h) Connect test fixture wiring.
(i) Turn test fixture power unit to ON.
(j) Remove CAPS handle safety pin.
(k) Gently pull handle out of handle to remove slack.
(l) Position test fixture claw over activation handle.
(m) Pull activation handle straight out toward windshield using a slow, steady motion.
(n) Verify power unit reads green indicating correct CAPS activation cable installation.
(o) If power unit reads red, verify activation cable is properly connected to test fixture and routing is correct and clear of other components.
(p) Re-check CAPS Activation Cable.
(q) If power unit reads red a second time, contact Cirrus Design for disposition. Otherwise, remove test fixture from airplane.
(r) **Serials 0002 thru 0820:** Position adapter plate to test fixture and secure with knurled nuts.
(s) Install CAPS handle safety pin.
Figure 95-01-018
CAPS Activation System

LEGEND
1. Cable Tie
2. Corrugated Loom
3. Forward Cable Tie
4. Middle Cable Tie
5. Aluminum Tape
6. Placard, CAPS Routing
7. Aft Cable Tie

1.00 inch overlap

1.50 inches max
NOTE
⚠️ Position loop of activation cable over test fixture hook.

LEGEND
1. Test Fixture
2. Activation Cable
3. Cone Adapter
4. Knurled Nut

Figure 95-01-019
CAPS Test Fixture - Serials 0002 thru 0820 (Sheet 1 of 3)
NOTE

⚠️ Position loop of activation cable over test fixture hook.

⚠️ Engage BH 222 nutplates with threaded studs and secure with wing nuts.

Figure 95-01-019
CAPS Test Fixture - Serials 0821 & subs (Sheet 2 of 3)

LEGEND
1. Test Fixture
2. Activation Cable
3. Cone Adapter
4. BULKHEAD 222 (REF)
5. Adapter Plate
6. Wing Nut

DEFECTIVITY:
Serials 0821 & subs

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NOTE
Pull handle of test fixture claw straight out, toward windsheild.

Figure 95-01-019
CAPS Test Fixture - Serials 0002 & subs (Sheet 3 of 3)