

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. Procedures and parts listed in this manual reflect Cirrus Design SR20 airplane serial numbers 1195 & subs, and all prior airplanes incorporating Service Bulletin SB 20-95-05.

A. Personnel Qualifications and Safety

CAUTION: Airframe and Powerplant license is not sufficient credentials for performing maintenance on CAPS.

The Cirrus Airplane Parachute System can only be serviced by trained technicians at Cirrus Authorized Service Centers specifically approved for CAPS maintenance. Cirrus Authorized Service Centers approved for the overhaul of CAPS Parachute and Rocket Motors must have the appropriate Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) licensing and hazardous material shipping authorizations in accordance with all applicable country, federal, and state regulations, and local laws and ordinances. It is essential that the procedures outlined in this publication be carefully followed and that all tasks be conducted with the highest possible degree of workmanship.

Materials used in the maintenance of the Cirrus Airplane Parachute System are potentially dangerous. Prior to performing CAPS maintenance the following Health and Safety Information, Safety Equipment and First Aid Procedures must be reviewed:

(1) Health and Safety Information

- (a) Prior to maintenance the Material Safety Data Sheets must be read.
- (b) Explosives used in this system are dangerous and must be handled carefully and used following approved safety procedures in accordance with this publication and all applicable country, federal, and state regulations, and local laws and ordinances.
- (c) Rocket motors and reefing line cutters may cause a number of health hazards due to improper handling or inadvertent functioning. These include burns, explosion, irritant in the case of skin and eye contact, and may be extremely hazardous in the case of accidental ingestion to kidneys, lungs and the nervous system.
- (d) Do not eat, drink, or smoke while performing maintenance on CAPS. Wash hands thoroughly after task completion.
- (e) For Health and Safety information applicable to the repair of composite structures, refer to Chapter 51-00 of the Airplane Maintenance Manual. ([Refer to AMM 51-00](#))

(2) First Aid Procedures

- (a) Eye Contact: For contact with solid propellant or combustion gases, flush eyes with large amounts of water and call physician immediately.
- (b) Skin Contact: For contact with solid propellant or combustion gases, wash with plenty of soap and running water. Remove contaminated clothing and wash before re use. Discard shoes if contaminated. See physician if skin shows signs of irritation.
- (c) Ingestion of Solid Propellant: Do not give liquids if victim is unconscious or drowsy. Otherwise, give no more than 2 glasses of water and induce vomiting by giving 30cc 'Syrup of Ipecac'. Get medical attention immediately.
- (d) Inhalation: If combustion gases are inhaled, remove victim to fresh air. If breathing is difficult, administer oxygen and CPR if needed. Call physician immediately.
- (e) For First Aid Procedures applicable to the repair of composite structures, refer to Chapter 51-00 of the Airplane Maintenance Manual. ([Refer to AMM 51-00](#))

B. Storage and Handling

For Handling information applicable to the repair of composite structures, refer to Chapter 51-00 of the Airplane Maintenance Manual. ([Refer to AMM 51-00](#))

(1) Parachute Assembly**(a) Storage**

- 1 Store in a secure, clean, cool, dry, and dark environment.
- 2 Store on a stable, non-abrasive surface.
- 3 Protect from contact with oil, grease, dirt, and acids.
- 4 Do not expose to temperatures above 160°F.

(b) Handling

- 1 Do not drop parachute assembly.
- 2 Do not drag parachute assembly over any surface.
- 3 Do not 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.

(2) Rocket Assembly**(a) Storage**

- 1 Store in a ATF approved explosive magazine containing materials of compatible classification.
- 2 Store rocket assembly at temperatures between 40°F to 90°F.
- 3 Certified safe exposure temperature: -28°F to 160°F.
- 4 Prevent contact with acids, bases, and oxidizing salts.
- 5 Protect from static discharge.
- 6 Protect from strong radio-frequency fields.
- 7 Protect from open flame or other ignition sources.
- 8 Protect from friction, impact, or mechanical shock.
- 9 Do not store propellant grains and igniter in same magazine.

(b) Handling

- 1 Handle as an explosive item at all times. Wear anti-static clothing and rubber soled boots.
- 2 Wear protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact with solid propellant or combustion gases.
- 3 Safety goggles with side shields should be worn at all times. Do not wear contact lenses under goggles.
- 4 Exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation.

(3) Pyrotechnic Line Cutters**(a) Storage**

- 1 Store in a ATF approved explosive magazine containing materials of compatible classification.
- 2 Do not expose to temperatures above 200°F.
- 3 Protect from friction, impact, or mechanical shock.

(b) Handling

- 1 Handle as an explosive item at all times.
- 2 Safety goggles with side shields should be worn at all times. Do not wear contact lenses under goggles.
- 3 Use hearing protection during disposal procedure.
- 4 Exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation.

C. Approved Parts and Materials

Cirrus and/or Cirrus-approved parts and materials shall only be used in the maintenance of this system. Life limited parts shall not have less than the time/cycles remaining on the removed part and have sufficient time/cycles remaining to reach the scheduled overhaul. Refer to the Illustrated Parts List of this publication for a listing of all approved parts. ([Refer to 95-01-01](#))

2. DESCRIPTION AND OPERATION

The Cirrus Airplane Parachute System consists of a parachute, a solid-propellant rocket to deploy the parachute, a rocket activation system, and a harness faired into the fuselage structure. (See Figure 95-01-011)

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 sq ft 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 parachute compartment. 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.

Two separate and deliberate pilot actions are required to deploy the 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:

Serials 1005 thru 1267 before SB2X-95-20,

Serials 1268 thru 1422 before SB2X-95-17,

Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227: 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.

Serials 1005 thru 1267 after SB2X-95-20,

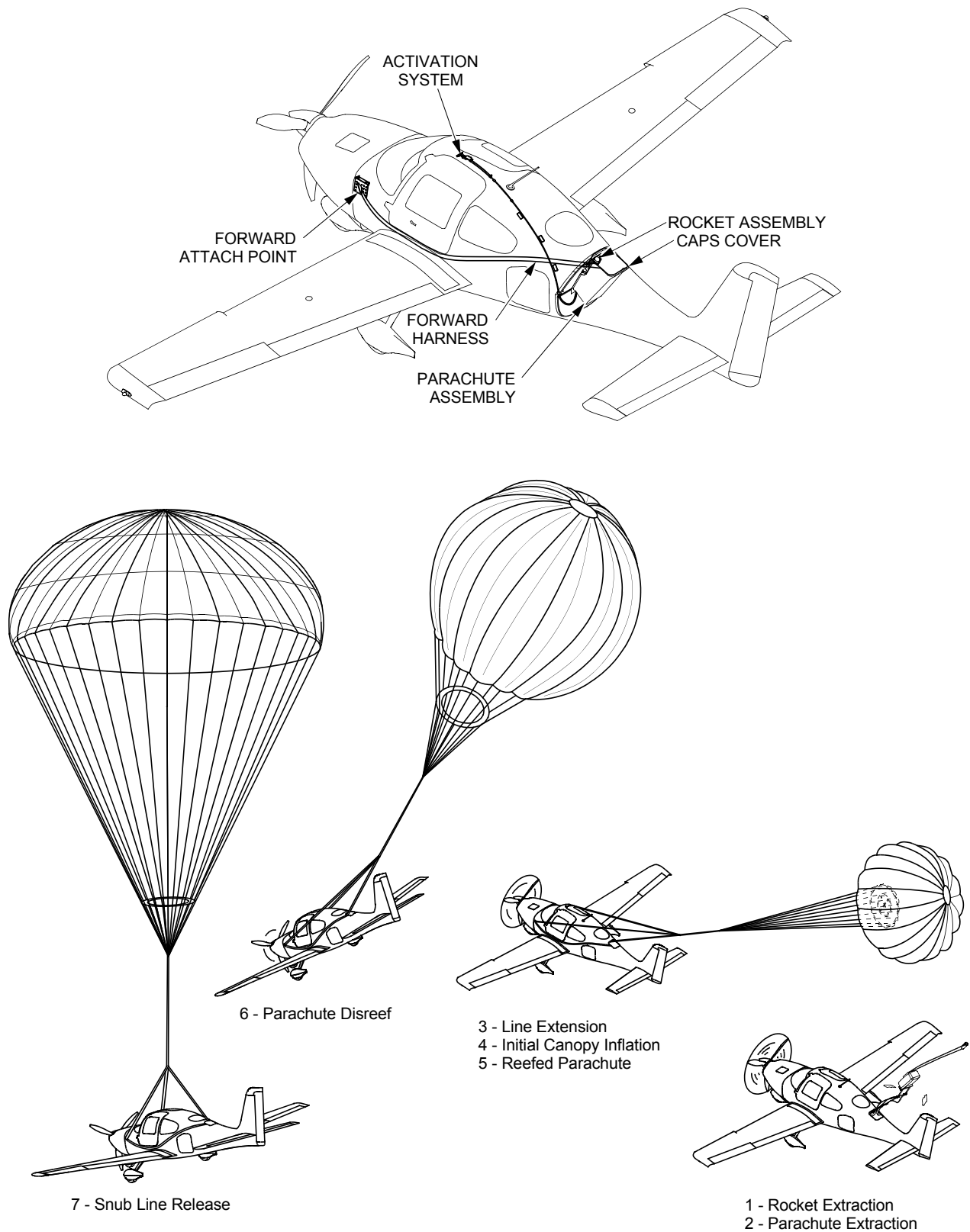
Serials 1268 thru 1422 after SB2X-95-17,

Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs: When one half-inch of plunger travel is reached, captured ball bearings are released allowing the plunger to close the electrical contacts. The closed electrical circuit ignites 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 rocket nozzle. The rocket impacts and dis-bonds the parachute compartment 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 forward attach fitting which supports the forward portion of the airplane.

The aft harness is pulled taut, the line cutters are activated, and approximately eight seconds later "fire" and sever the nylon cord. The three-link release mechanism then opens allowing the aft harness to fully extend. The airplane then assumes its touchdown attitude; approximately ten degrees nose down, to optimize occupant protection.



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Figure 95-01-011
CAPS System and Deployment

EFFECTIVITY:
All

A. 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 igniter with a flexible, stainless steel aircraft grade cable routed through a cable housing above the cabin ceiling headliner. The cable routes from the top center of the fuselage to the left side near the baggage door. (See Figure 95-01-0114)

A cover with 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.

B. Rocket Assembly - Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227

The rocket assembly consists of the rocket igniter, rocket base, and rocket motor. The rocket 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. (See Figure 95-01-012)

(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.

(2) Rocket Base

The igniter primary booster ignites a secondary black powder and magnesium booster contained in the rocket base. The extra booster material is used to ensure ignition of the larger rocket motor. The rocket 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 rocket nozzle providing thrust.

(3) Rocket Motor

The 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 rocket 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 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 parachute system.

C. Rocket Assembly - Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17, 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs

The rocket assembly consists of the igniter switch, rocket igniter, and rocket motor. The igniter switch consists of a steel spring, a plunger, and two electrical contacts to which the activation cable is attached. A wiring harness connects the switch to an igniter installed at the top of the rocket which via electrical circuit 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. (See Figure 95-01-012)

(1) Igniter Switch

Pulling the activation cable compresses the igniter switch spring and cocks the plunger. One half-inch of plunger travel is required to release the ball bearings and allow the plunger to complete an electrical circuit between the contacts.

(2) Rocket Igniter

The electrical circuit heats the high-resistant wire, igniting 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 contacts by a 0.060-inch gap.

(3) Rocket Motor

The 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 rocket 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 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 parachute.

EFFECTIVITY:

Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17, 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs

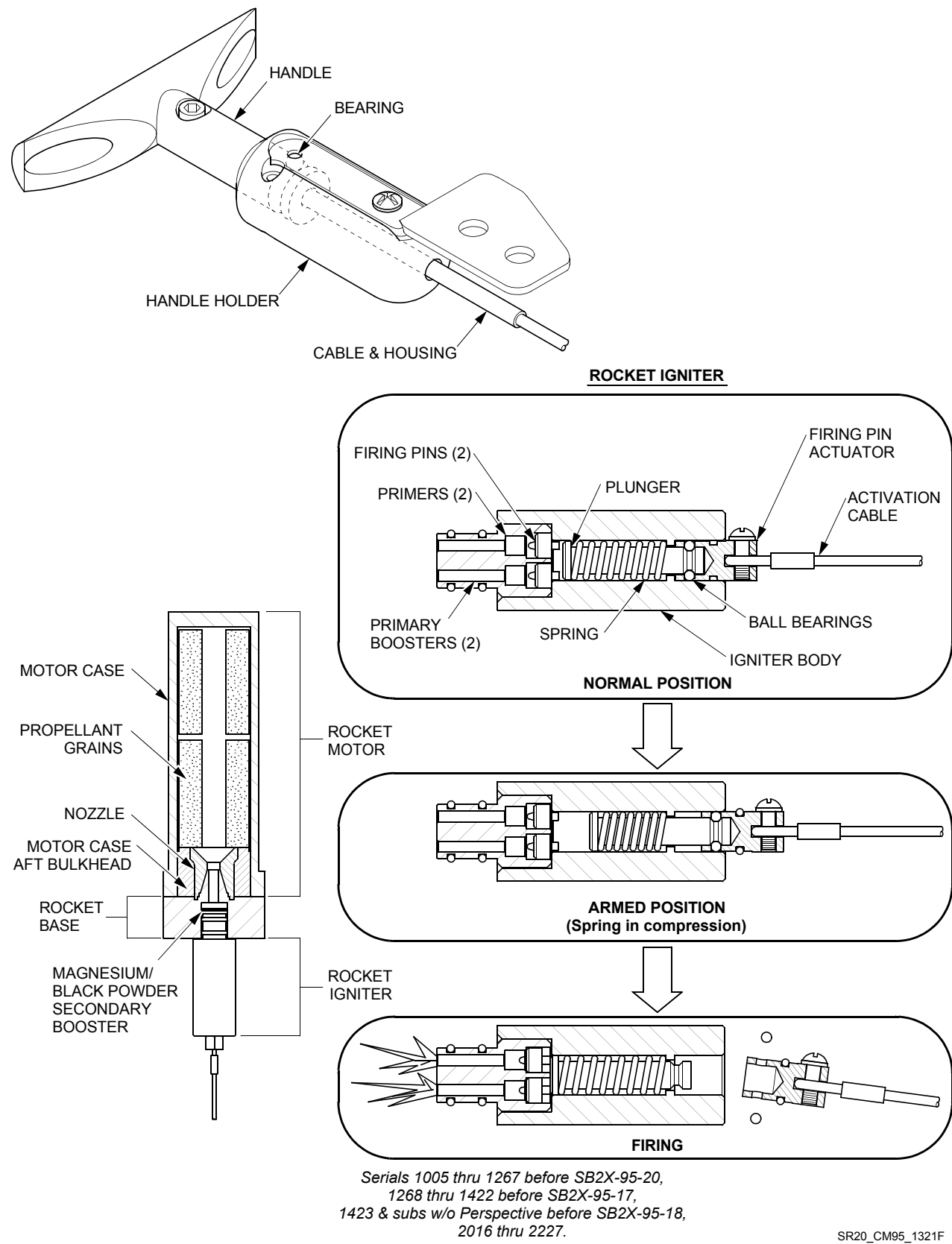
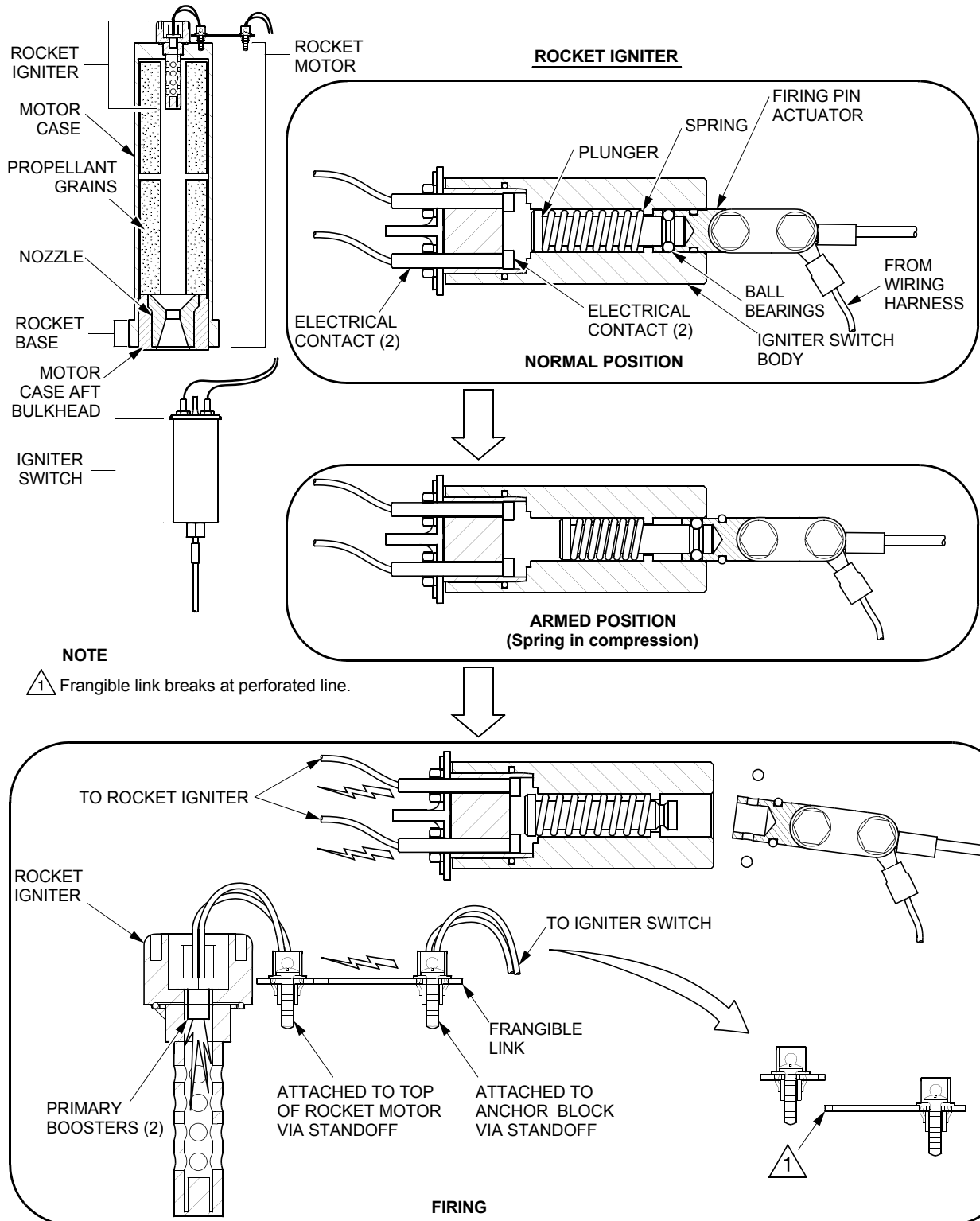


Figure 95-01-012
CAPS Handle and Ignition System - Serials w/ Mechanical Ignition (1 of 2)



Serials 1005 thru 1267 after SB2X-95-20,
1268 thru 1422 after SB2X-95-17,
1423 & subs w/o Perspective after SB2X-95-18,
2228 & subs.

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Figure 95-01-012
CAPS Handle and Ignition System - Serials w/ Electronic Ignition (2 of 2)

EFFECTIVITY:
Serials w/ Electronic Ignition

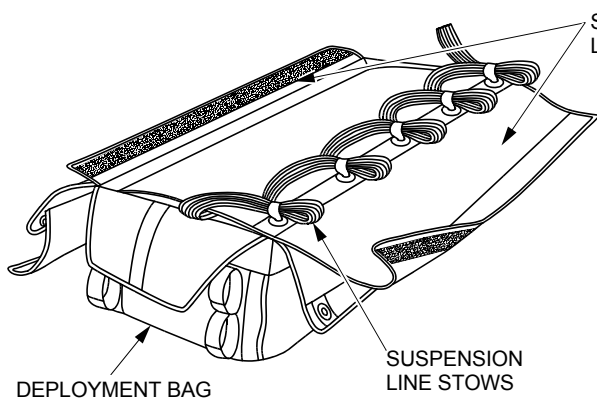
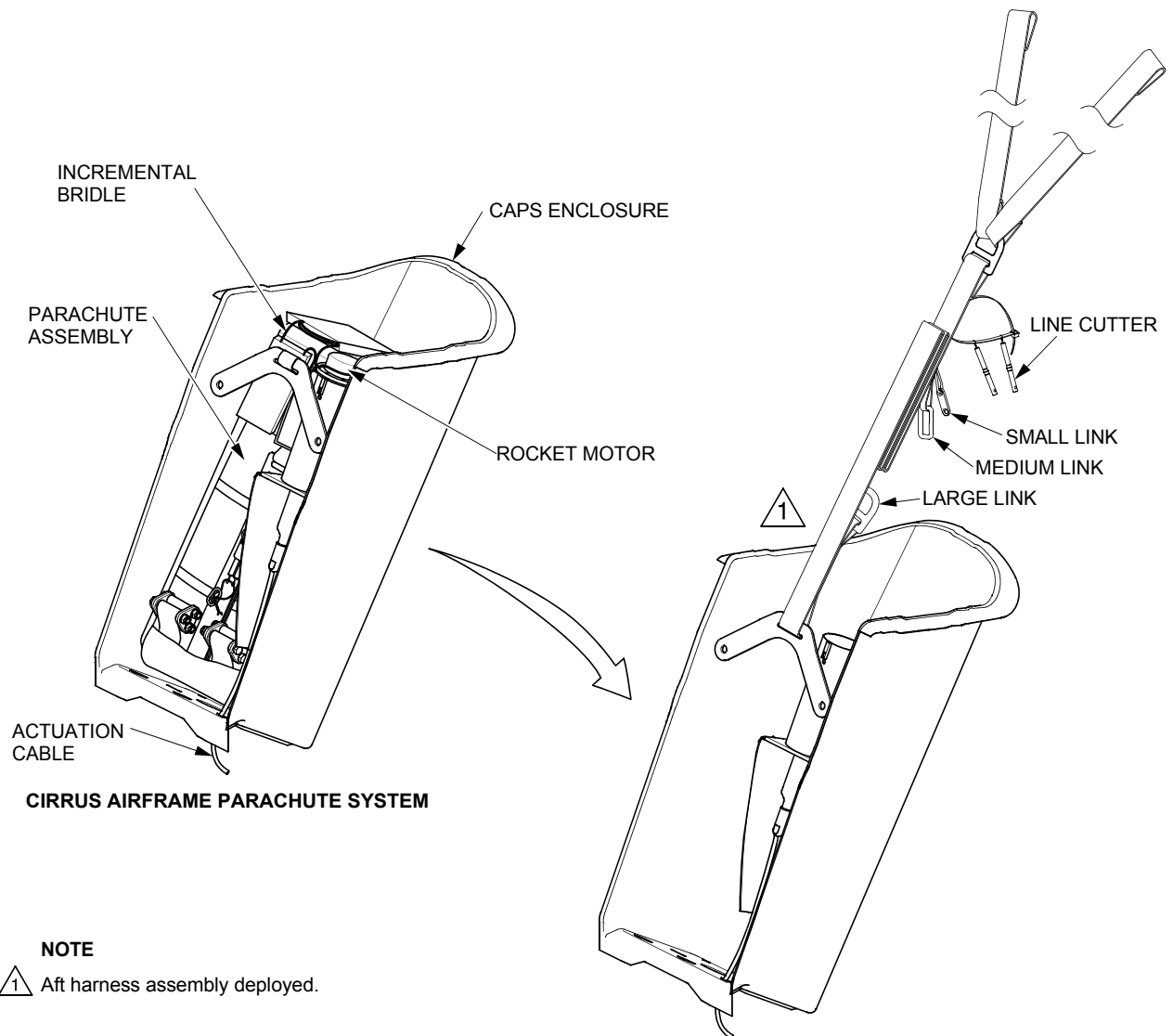
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D. Incremental Bridle and Deployment Bag (See Figure 95-01-013)

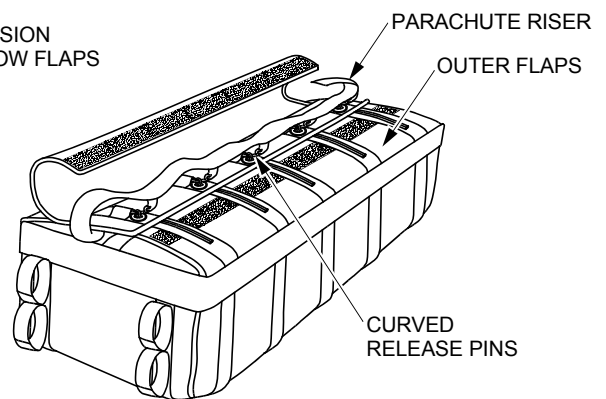
The rocket motor is attached to the deployment bag via a set of Teflon sheathed stainless steel cables, or rocket lanyards, and an incremental bridle. The incremental bridle consists a length of nylon webbing that is folded in half and sewn with a series of bartack stitches. Upon activation these stitches 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.



DEPLOYMENT BAG SUSPENSION LINE STOWS



DEPLOYMENT BAG CLOSURE

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Figure 95-01-013
Incremental Bridle and Deployment Bag

EFFECTIVITY:
All

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 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 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

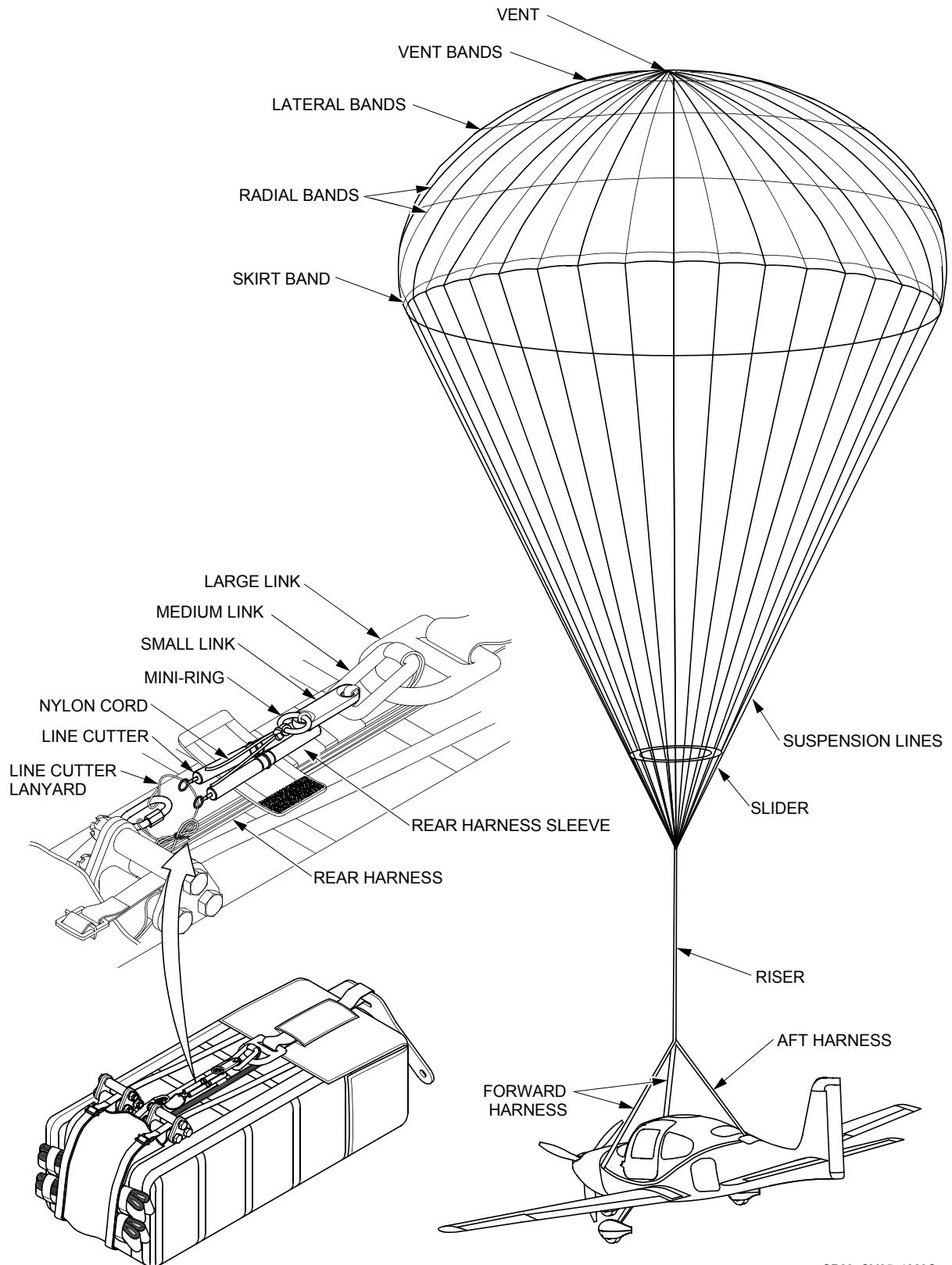
To limit inflation loads, CAPS uses a slider to aerodynamically reef the parachute. The slider is a flat annular shaped fabric panel with metal grommets attached to its perimeter. The parachute suspension lines are routed through the grommets so that the slider is free to move along the suspension lines. 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 (See Figure 95-01-014)

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. 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. 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 mini-ring and short length of nylon cord which is severed by pyrotechnic reefing line cutters.



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Figure 95-01-014
Parachute Assembly and Line Cutters

EFFECTIVITY:
All

3. MAINTENANCE PRACTICES

WARNING: Never activate the system 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 temperatures above 500° F (260° C). In the event of ground fire, use necessary precautions to avoid CAPS deployment.

A. Servicing - Pyrotechnic Line Cutters Replacement (See Figure 95-01-015)

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

Description	P/N or Spec.	Supplier	Purpose
Pyrotechnic Line Cutter Replacement Kit w/ Braided Cord	Reference Parts List	Cirrus Design	Replacement.
Vise Clamp	-	Any Source	Secure line cutter.
Leather Work Gloves	-	Any Source	Protection.
Goggles or Full Face Mask	-	Any Source	Protection.
Pliers	-	Any Source	Handling.

- (b) Remove handle access cover and install safety pin.
- (c) Remove bulkhead 222 (BH 222) trim panel and carpet. (Refer to AMM 25-10)
- (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 Rapide link and un-thread lanyard routed through line cutter's ignition loops.

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

- (h) Cut and remove nylon cord securing line cutters to link assembly.
- (i) Remove line cutters from airplane.
- (j) Discharge line cutters as follows: (See Figure 95-01-016)

WARNING: Ensure working area, environmental conditions, and any nearby materials within trajectory of line cutter are non-flammable.

Wear leather work gloves, and goggles or full face mask during activation of line cutter.

A heat-resistant braided cord is threaded through new line cutters to provide safety during transport. Untie the cord and re-threaded through the removed line cutters prior to discharge to absorb line cutter blade energy and minimize discharged debris.

- 1 Remove braided cord from new line cutter. Retain new line cutter in a safe location until required for installation.
- 2 Thread braided cord through removed line cutter's installation hole opposite ignition loops. Tie ends of braided cord together securely.

CAUTION: Too much pressure in vise clamp could damage line cutter and prevent proper activation. Do not crush line cutter in vise clamp.

- 3 Insert line cutter into vise clamp with ignition loop positioned upward 45°, ensuring line cutter is safely directed away from flammable materials.
- 4 Using pliers, carefully pull ignition loop from line cutter.
- 5 After audible "snap" is heard, record seconds between pulling ignition loop and firing of line cutter. Be prepared for delayed activation. Typical activation duration is approximately 8 seconds.

WARNING: The line cutter can attain 1,100°F (590°C) during activation. Use care when handling hot line cutters.

- 6 When cool, remove line cutter from vise and shake line cutter vigorously. Verify rattle of loose spring can be audibly detected.
- 7 Verify portion of knife blade can be identified in gap between braided cord and cutter hole edge.
- 8 Safely discard line cutter.
- 9 Repeat disposal procedure on remaining line cutter.

(2) Installation - Pyrotechnic Line Cutters

- (a) Ensure safety pin is installed.
- (b) Verify three-link 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.

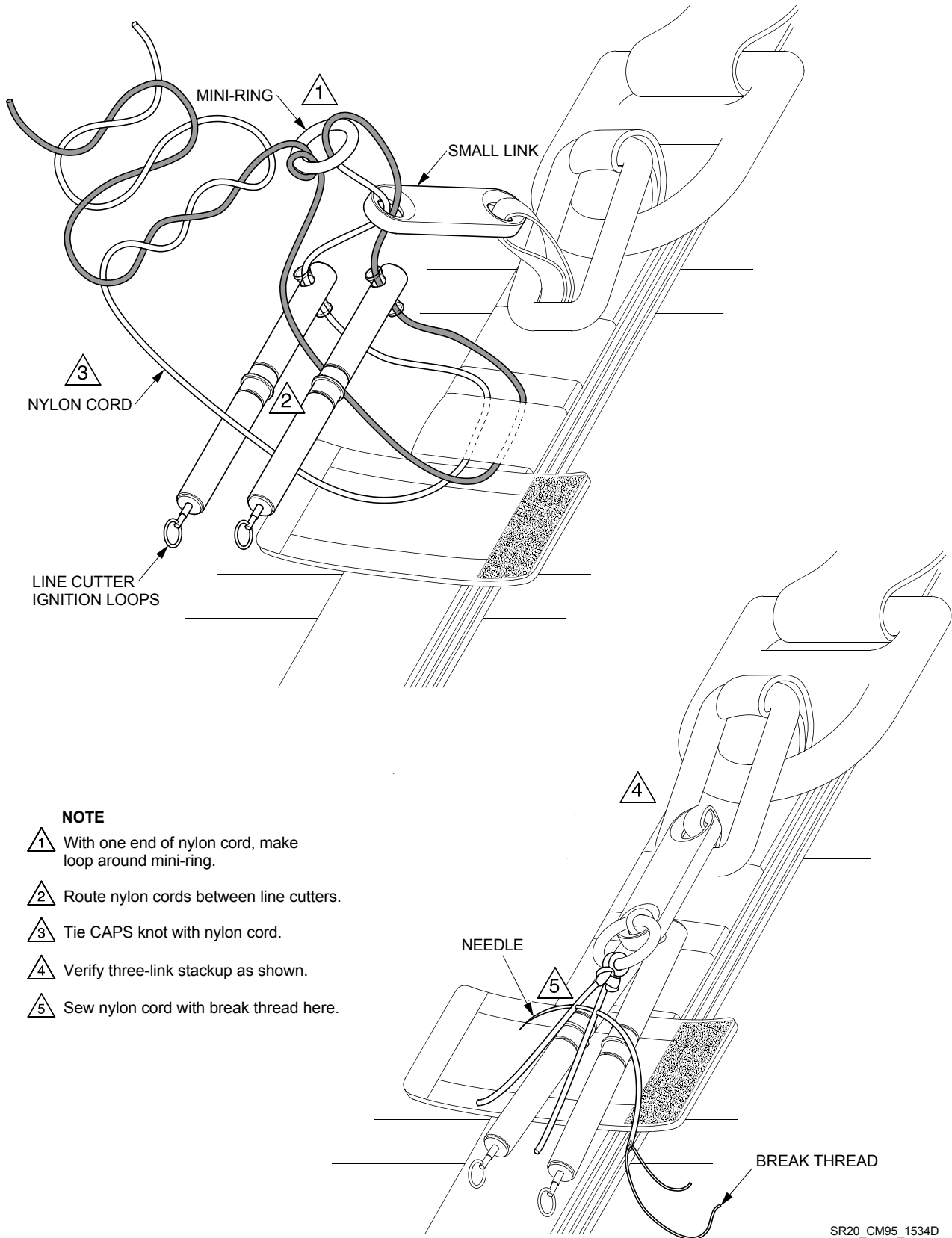
CAUTION: Ensure no slack exists in nylon cord between rear harness sleeve and mini-ring and line cutter installation holes and small link.

- (k) Cinch nylon cord tight.
- (l) Tie CAPS knot: (See Figure 95-01-015)

- 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) Using break thread, sew nylon cord ends together just below CAPS knot.
- (n) Tie CAPS knot with break thread. (See Figure 95-01-015)

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

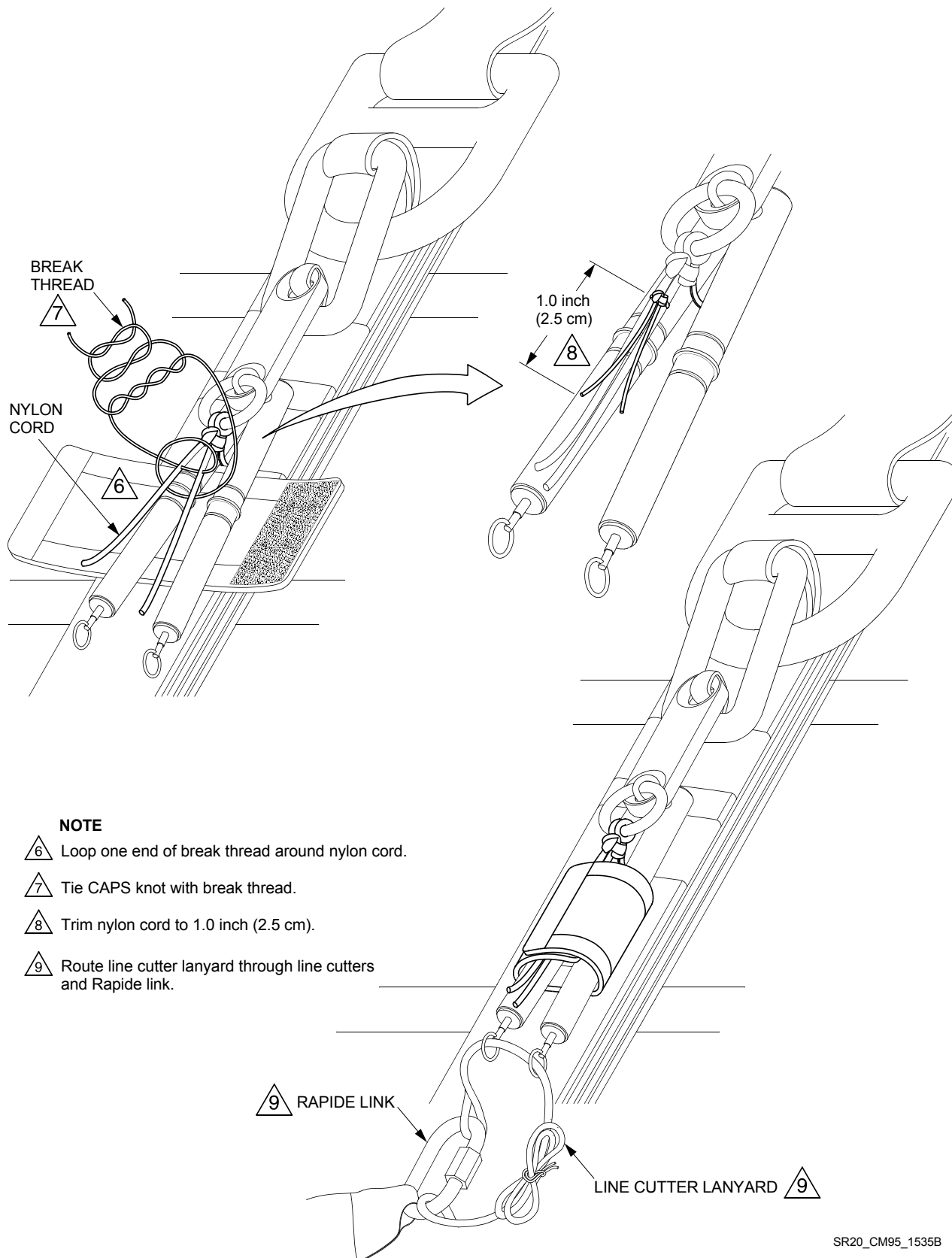
- (o) Trim nylon cord to 1.0 inch (2.5 cm).
- (p) Route line cutter lanyard through line cutter's ignition loops and secure lanyard to Rapide link.
- (q) Close hook and loop securing flaps.
- (r) Remove catch cloth from below rocket and parachute assembly.
- (s) Visually inspect parachute compartment for security, leaks, and general condition. (Refer to AMM 05-20)
- (t) Install access panel CB7 to BH 222. (Refer to AMM 06-00)
- (u) Install BH 222 trim panel and carpet. (Refer to AMM 25-10)



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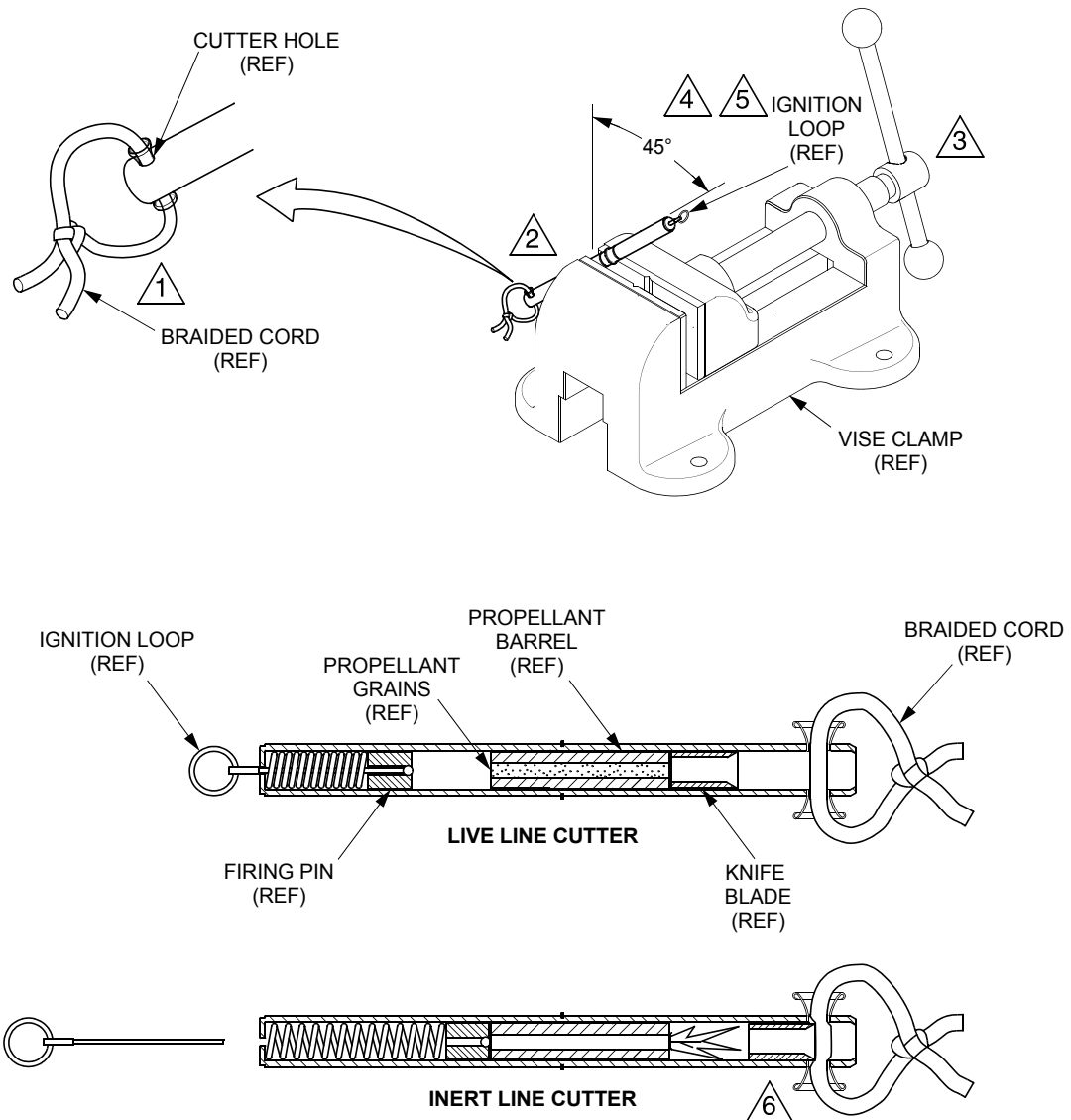
Figure 95-01-015
Pyrotechnic Line Cutters Replacement (1 of 2)

EFFECTIVITY:
All



SR20_CM95_1535B

Figure 95-01-015
Pyrotechnic Line Cutters Replacement (2 of 2)



NOTE

- △1 To prevent errant blade discharge, carefully thread braided cord through line cutter hole of the removed line cutter. Tie ends of braided cord together securely.
- △2 Insert line cutter into vice with ignition loop positioned upward 45°. Ensure bottom of line cutter is not directed toward flammable structure or materials.
- △3 Too much pressure in vise clamp could damage line cutter and prevent proper activation. Do not crush line cutter in vise clamp.
- △4 To allow for delayed activation, use stopwatch to measure seconds between pulling ignition loop and firing of line cutter.
- △5 Using pliers, carefully pull ignition loop from line cutter.
- △6 To ensure line cutter is inert, verify knife blade has extended.

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Figure 95-01-016
Pyrotechnic Line Cutter Disposal

EFFECTIVITY:
All

95-01-01
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B. Empennage Cover (See Figure 95-01-017)

- (1) Removal - Empennage Cover
- (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Slide Hammer w/ 5/8 inch Fitting and Anvil Attachment	-	Any Source	Remove empennage cover.
Inspection Mirror	-	Any Source	Verify hole location.
Drill Bit w/ Stop Collar	1/4 inch	Any Source	Drill pilot hole.
Drill Bit w/ Stop Collar	5/8 inch	Any Source	Drill hole for slide hammer fitting.

- (b) Remove rocket assembly. (Refer to 95-01-01)
- (c) From aft, exterior edge of rear window and along airplane center line, measure 9.5 inches (24.1 cm) aft and mark.
- (d) From mark, measure 3.25 inches (8.26 cm) left and mark pilot hole.
- (e) Using catch cloth, protect parachute assembly from foreign object debris/damage.

WARNING: To ensure drill bits do not contact parachute assembly, use stop collar during drilling procedures.

- (f) At pilot hole mark, use 1/4 inch drill bit with stop collar to drill pilot hole.
- (g) Through access panel CB7, use inspection mirror to verify that hole is approximately centered within the empennage cover strike plate.
- (h) At pilot hole, use 5/8 inch drill bit with stop collar to drill hole that facilitates insertion of slide hammer fitting.
- (i) Position slide hammer to empennage cover and insert slide hammer fitting into drilled hole.
- (j) At interior of empennage cover, attach anvil to slide hammer fitting.
- (k) Use sharp, rapid movements with slide hammer until empennage cover is disbonded from fuselage.

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 the system and failure to deploy.

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

- (l) Continue to work edges away until it is possible to slowly peel empennage cover away from fuselage flange.
- (m) Remove cover remnant from airplane.
- (n) Remove catch cloth from parachute assembly.

(2) Installation - Empennage Cover

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

Description	P/N or Spec.	Supplier	Purpose
Empennage Cover	Reference Parts List	Cirrus Design	N/A
Warning Placard	Reference Parts List	Cirrus Design	Provide warning information.
ScotchBrite Conditioning Disc	840332	Standard Abrasives Simi Valley, CA (805) 520-5800	Adhesive removal.
Foam Tape 1/8" x 1/4"	93675K11	McMaster-Carr Atlanta, GA (404) 346-7000	Cover installation.
Plastic Sheet	-	Any Source	Cover installation.
American Tape Masking Tape	PG27	Any Source	Cover installation.
Mixing Cup	-	Any Source	Mix resin system.
Tongue Depressor Type Mixing Stick/Applicator	-	Any Source	Mix resin system.
Scale	18605T84	McMaster-Carr Atlanta, GA (404) 346-7000	Weighing.
Epon 862 ^a	50013-101	Cirrus Design	Base resin.
Epon 862/Heloxyl 68 _a	50013-401	Cirrus Design	Base resin/Modifier.
Heloxyl 68 _a	50013-301	Cirrus Design	Modifier.
Epicure 3234	50013-201	Cirrus Design	Hardener.
Aerosil	50009-301	Cirrus Design	Filler1.
Sil-Cell	50009-401	Cirrus Design	Filler2.
Scotch® Filament Tape	893	Any Source	Cover installation.

a.Approved adhesive system includes Epon 862/Heloxyl 68 blend or Epon 862 and Heloxyl 68 as separate components.

- (b) Ensure safety pin is installed.
- (c) Using plastic sheet and tape, protect parachute assembly from dust and contaminants by lining opening of parachute compartment.

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 sharp tools. Failure to follow this warning could result in damage to the system and failure to deploy.

- (d) Using die grinder and sanding disc, remove approximately 70% of remnant adhesive from fuselage flange, and abrade flange surface for adhesive application.
- (e) Draw an offset line 0.25 inch (0.64 cm) from scribeline on new empennage cover, and trim to offset line to facilitate trimming and fitting.
- (f) Trim empennage cover to fit, ensuring reinforced section of empennage cover is located above rocket assembly. Maximum gap between empennage cover and fuselage is 0.10 inch (2.5 mm).

Note: Empennage cover remnant may be used as an outline template to facilitate cover installation.

- (g) Position empennage 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 empennage cover.
 - 1 Solvent clean empennage 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.
 - 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 empennage 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.

To ensure empennage cover will detach as required, do not prep cover.

- (i) Solvent clean fuselage flange and empennage 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 parachute compartment 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: If using standalone modifier, 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 If using Epon 862/Heloxly 68 (Base Resin/Modifier) and Epicure 3234 (Hardener) at 100:14.25 ratio, measure and mix adhesive.
 - a. Measure 60.0 g of base resin/modifier (Epon 862/Heloxly 68) into mixing cup.
 - b. Measure 8.6 g of hardener (Epicure 3234) and add to base resin/modifier.
 - c. Mix material thoroughly.
 - 4 If using Epon 862 (Base Resin), Heloxly 68 (Modifier) and Epicure 3234 (Hardener) at 100:11:16 ratio, measure and mix adhesive.
 - a. Measure 55.0 g of base resin (Epon 862) into mixing cup.
 - b. Measure 6.0 g of modifier (Heloxly 68) and add to base resin.
 - c. Mix material thoroughly.
 - d. Measure 8.8 g of hardener (Epicure 3234) and add to resin/modifier mixture.
 - e. Mix material thoroughly.
 - 5 Mix 4.7 g of Filler1 (Aerosil) with 5.3 g Filler2 (Sil-Cell).
 - 6 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.

WARNING: Do not allow any adhesive to contact parachute assembly straps.

- (m) Squeegee off excess adhesive flush with foam tape and top of fuselage.
- (n) Position cover over parachute compartment, orient cover using reference lines, and gently press into place.
- (o) Secure cover to fuselage.

Note: To prevent cover deformation and generation of air pockets in adhesive, tape empennage cover to fuselage with two people working on either side of airplane.

- 1 Cut 20, two-foot strips of filament tape and evenly distribute between LH and RH sides of horizontal stabilizer. Make ready for quick-use by lightly hanging each piece from 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 0.120 - 0.005 inch (3.05 - 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 panel CB7, remove plastic sheet. Inspect and clean enclosure for any spilled adhesive or debris.
- (q) Perform Heated Air Cure method for 1 hour at 140° F (60° C). (Refer to AMM 51-20)

CAUTION: Ensure aft window is properly protected during heat application.

- (r) Fill, seal, and paint empennage cover enclosure. (Refer to AMM 53-30)
- (s) Install empennage cover placard. (Refer to AMM 11-20)
- (t) Install rocket assembly. ([Refer to 95-01-01](#))

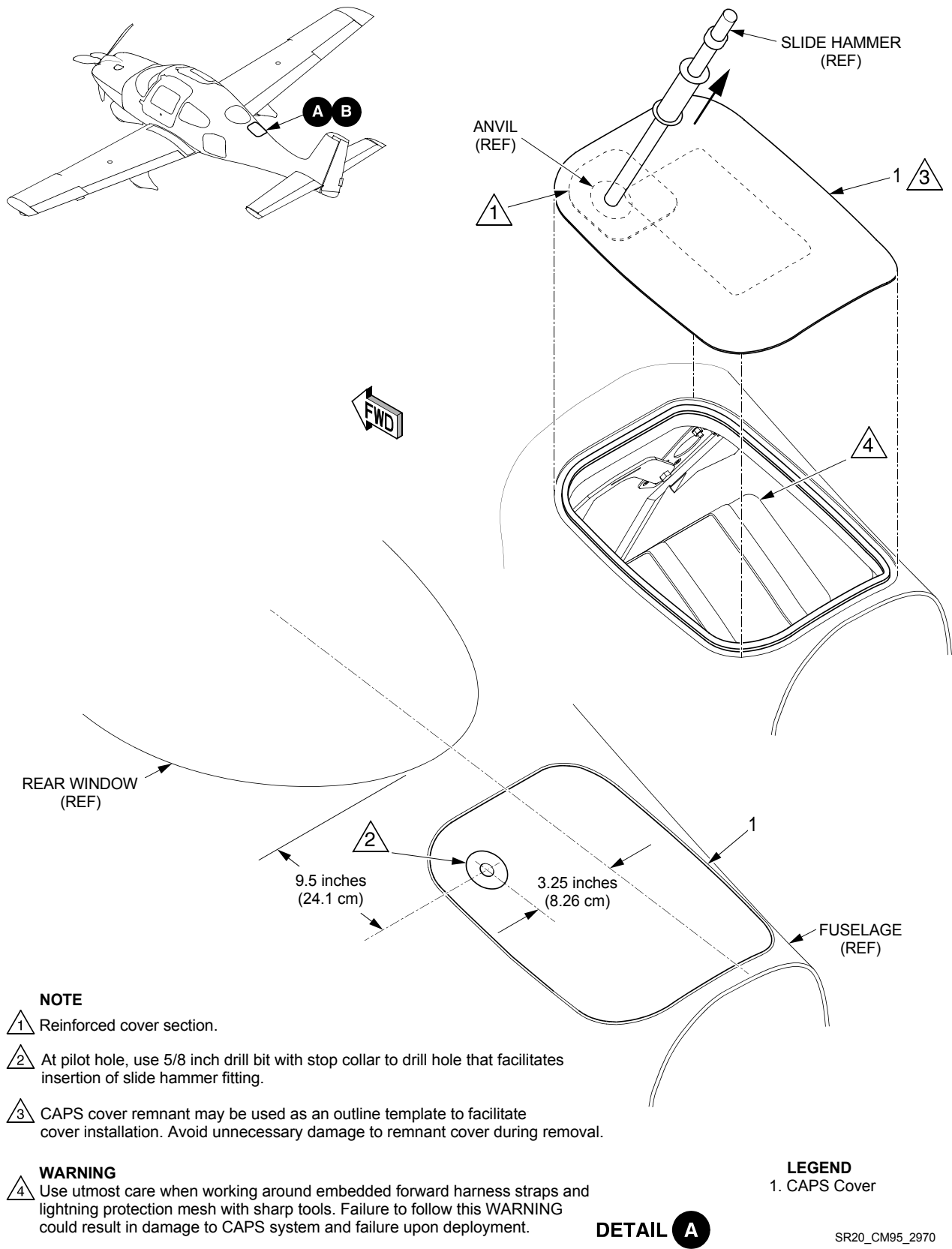
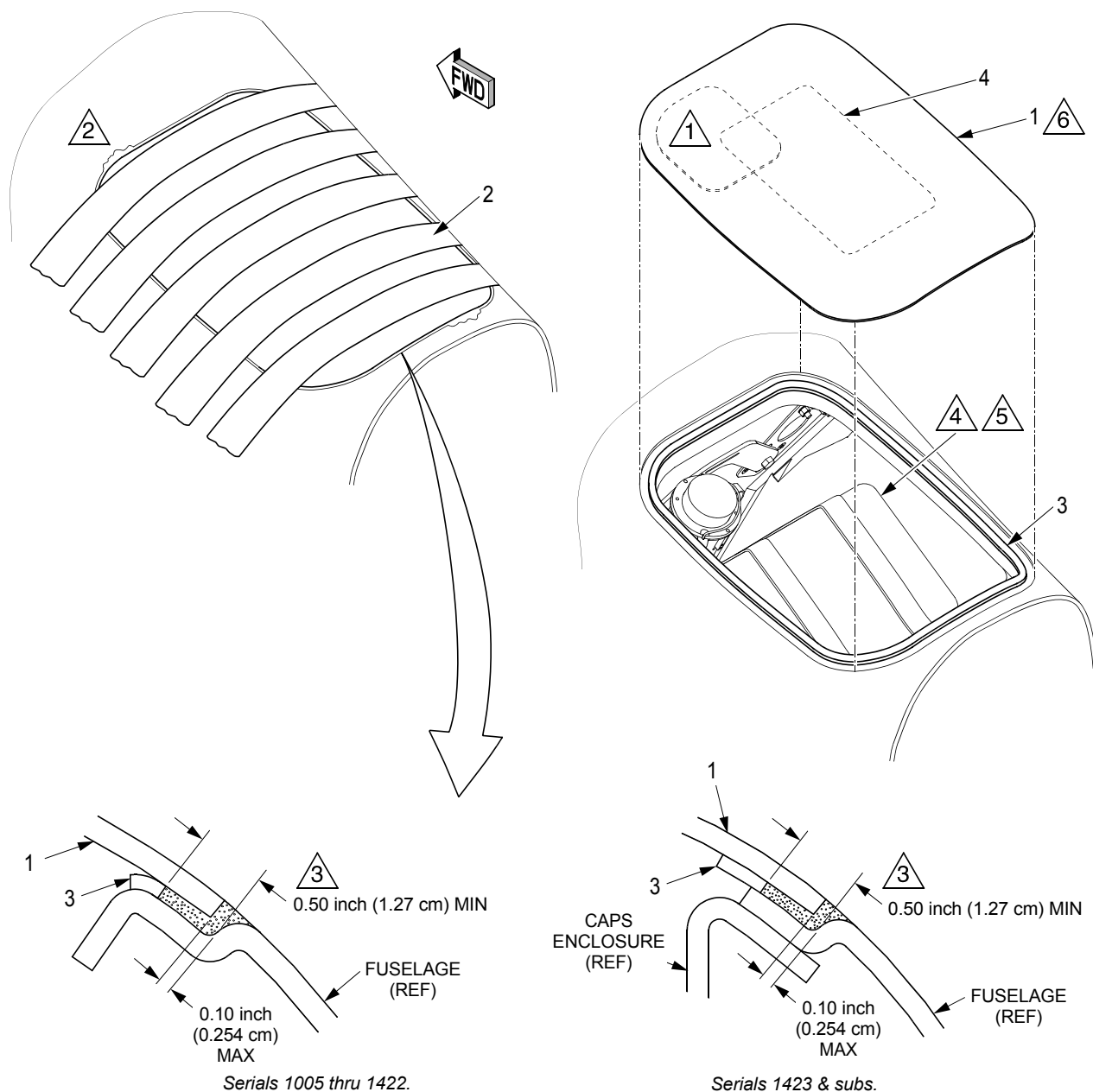


Figure 95-01-017
Empennage Cover Replacement (1 of 2)

EFFECTIVITY:
All



NOTE

- 1 Reinforced cover section.
- 2 Wipe away over-squeeze.
- 3 Feather adhesive to fuselage contour.

WARNING

- 4 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.
- 5 Do not allow any adhesive to contact parachute assembly straps.
- 6 To ensure CAPS cover will detach as required, do not prep cover.

TYPICAL CROSS SECTION

DETAIL B

LEGEND

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

SR20_CM95_1503C

Figure 95-01-017
Empennage Cover Replacement (2 of 2)

95-01-01

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EFFECTIVITY:
All

C. Rocket Assembly (See Figure 95-01-0111)**(1) Removal - Rocket Assembly**

- (a) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Self-Locking Nut	MS21044-08 (or equivalent)	Any Source	Shunt rocket igniter.
Screw, Machine	MS35206-245 (or equivalent)	Any Source	Shunt rocket igniter.

- (b) Remove key from ignition.
 (c) Set BAT 1, BAT 2, and AVIONICS switches to OFF positions.
 (d) *Serials 1005 thru 1267 after SB2X-95-20:* Disconnect battery 1. (Refer to AMM 24-30)
 (e) *Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Disconnect battery 1 and battery 2. (Refer to AMM 24-30)

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

- (f) Remove handle access cover and install safety pin.
 (g) Remove bulkhead 222 (BH 222) trim panel and carpet. (Refer to AMM 25-10)
 (h) Remove access panel CB7 from BH 222. (Refer to AMM 6-00)
 (i) 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 rocket assembly.

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.

- (j) *Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Disconnect activation cable from rocket assembly.
- 1 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: Activation cable and cone adapter should easily separate from the rocket cone allowing removal from the aircraft. If interference between activation cable and firing pin actuator exists, contact Cirrus Design for disposition.

- (k) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs after SB2X-95-18, 2228 & subs:* Disconnect activation cable from rocket assembly.

- 1 Remove screw and washer securing activation cable to firing pin actuator.
- 2 Remove activation cable from cone assembly.

WARNING: Activation cable should easily separate from the cone assembly allowing removal from the aircraft. If interference between activation cable and firing pin actuator exists, contact Cirrus Design for disposition.

- (l) *Serials 1886 & subs w/ Aircraft Data Logger:* Remove cable ties securing wire harness to anchor blocks on rocket shield. Disconnect plug P1046 from jack J1046.

- (m) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17:* Remove rocket assembly.

- 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.

- (n) *Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17:* Remove rocket assembly.

- 1 While supporting rocket assembly, remove bolts and washers securing shim, backing plate, and rocket assembly to BH 222.

- (o) *Serials 1423 thru 1624 before SB2X-95-18:* Remove rocket assembly.

- 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 parachute compartment.

- (p) *Serials 1423 thru 1624 w/o Perspective after SB2X-95-18, 1625 & subs:* Remove rocket assembly.

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

- (q) To facilitate rocket assembly removal, position aft harness and fuselage harnesses to the side and carefully pull spiral wrap cable from adjustable bushing pass-through hole as required.

- (r) Carefully slide rocket assembly from behind BH 222 so that top of rocket assembly is exposed.

- (s) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Remove frangible link.

- 1 Remove wire harness securing frangible link to igniter switch.
- 2 Remove wire harness securing frangible link to rocket igniter.
- 3 Shunt rocket igniter by grounding wire terminals using screw and nut. (See Figure 95-01-018)

- 4 Remove screws, washers, and standoffs securing frangible link to rocket assembly.
- (t) Remove tension screws securing pick-up collar assembly to rocket launch tube.

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

- (u) Carefully slide pick-up collar assembly off of rocket assembly.
- (v) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17:* Disconnect activation cable from rocket assembly.

- 1 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: Activation cable and cone adapter should easily separate from the rocket cone allowing removal from the aircraft. If interference between activation cable and firing pin actuator exists, contact Cirrus Design for disposition.

- (w) Remove rocket assembly from airplane.
- (2) Disassembly - Rocket Assembly

- (a) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Spanner Wrench	-	Any Source	Remove igniter.

- (b) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Remove screws securing rocket cone to rocket igniter. Slide rocket cone off of rocket igniter.
- (c) Cut and remove safety wire from screws securing rocket motor to rocket shelf.
- (d) *Serials 1005 thru 1422:* Remove rocket shield and shelf.
- 1 Remove screws and washers securing rocket motor to rocket shelf.
- 2 Slide rocket shelf and shield off of rocket motor.
- (e) *Serials 1423 & subs:* Remove rocket shelf assembly.
- 1 Remove screws and washers securing rocket motor to rocket shelf assembly.
- 2 Slide rocket shelf assembly off of rocket motor.
- (f) *Serials 1005 thru 1267 before SB2X-95-20, Serials 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Safety the rocket motor by wiring firing pin actuator to rocket igniter.
- (g) Remove rocket motor. (See Figure 95-01-0113)
- 1 Remove nylon screws securing rocket motor to rocket base.
- 2 Carefully slide rocket motor from launch tube.

CAUTION: *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Do not remove rocket igniter from rocket base.

- (h) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Remove rocket igniter. (See Figure 95-01-0113)
- 1 Using spanner wrench, rotate rocket igniter counter-clockwise from rocket motor.
 - 2 Carefully slide rocket igniter from rocket motor.
- (i) Itemize each removed rocket assembly component.
- Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:*
- rocket motor
 - rocket igniter/launch tube assembly
- Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:*
- rocket motor
 - rocket igniter
 - igniter switch
- (j) Identify each removed rocket assembly component as follows.
- "Pending Cirrus Design Disposition: Removed from SR20 - ASN#### Date: mm/dd/yyyy"
- where "####" specifies aircraft serial number, and "mm/dd/yyyy" specifies date of rocket assembly component removal.

WARNING: Ensure each removed rocket assembly component is properly identified to prevent any attempt to re-use assemblies pending disposition by Cirrus Design.

- (k) Store rocket motor and rocket igniter at an approved storage location pending disposition by Cirrus Design.

WARNING: Rocket assembly components (rocket motor and rocket igniter) must not be stored assembled to one another, or in the same magazine.

To ensure inadvertent re-use, separate removed assemblies from new replacement assemblies.

- (3) Disassembly - Rocket Motor

WARNING: Disassembly of Rocket Motor is prohibited, except when preparing Rocket Motor for return or disposal. If preparing Rocket Motor for return or disposal, contact Cirrus technical support for disposition.

- (4) Assembly - Rocket Motor

WARNING: This procedure is hazardous and may only be accomplished by a Cirrus certified technician specifically trained and certified in rocket motor assembly.

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

Description	P/N or Spec.	Supplier	Purpose
General Purpose Industrial Adhesive Silicone Sealant	IS808	GE Silicones Waterford, NY 12188 518-237-3330	Seal Ortman key slot.

Description	P/N or Spec.	Supplier	Purpose
Flourinated Oil Lubricant	DuPont Krytox 240AZ	DuPont Wilmington, DE 19805 302-774-1000	Lubricate o-ring.
Grounded Anti-static Mat and Strap	-	Any Source	Prevent build-up of static electricity.
Padded Strap Wrench	-	Any Source	Rotate rocket motor onto rocket nozzle bulkhead.

- (b) Inspect inner diameter of pick-up collar for surface irregularities. If irregularities exist, perform the following:

- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Half-Round File	-	Any Source	Remove bumps.
Isopropyl Alcohol	TT-I-735 Grade A or B	Any Source	Clean installation area.
Cotton Cloth (clean and lint free)	-	Any Source	Clean installation area.
Primer	(Refer to AMM 51-30)	Any Source	Seal.
Threadlocker, Medium	Loctite 242	Any Source	Bond screws.

- 2 *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Remove surface irregularities from pick-up collar.

- a. Remove countersunk screws securing pick-up collar support to pick-up collar.
- b. 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.
- c. Use half-round file as required to remove bumps.
- d. Solvent clean with isopropyl alcohol. (Refer to AMM 20-30)
- e. Apply primer to affected area.

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!

- f. Position pick-up collar support to upper side of pick-up collar.
- g. 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.

- h. Inspect countersunk screws removed previously from pick-up collar for damage. Replace countersunk screws as required.
- i. Apply medium threadlocker to countersunk screws removed previously from pick-up collar.
- j. Install countersunk screws securing pick-up collar support to pick-up collar.
- 3 *Serials 1005 thru 1267 after SB2X-95-20,*
Serials 1268 thru 1422 after SB2X-95-17,
Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs: Remove surface irregularities from pick-up collar.
 - a. Use half-round file as required to remove bumps.
 - b. Solvent clean with isopropyl alcohol. (Refer to AMM 20-30)
 - c. Apply primer to affected area.
- (c) Mount rocket nozzle bulkhead to workbench, or similar flat, stable surface.
 - 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Drill Bit	0.807 inch (2.049 cm)	Any Source	Drill center hole.
Drill Bit	0.175 inch (0.445 cm)	Any Source	Drill attach holes.
Screws (3), Steel, 10-32 Thread, Length Variable ^a	-	Any Source	Secure rocket nozzle bulkhead.

a. Length must be 0.375 inch (0.953 cm) longer than workbench thickness.

- 2 Transfer template pattern to workbench and match drill. (See Figure 95-01-019)
- CAUTION:** Do not secure rocket nozzle bulkhead to workbench with nylon screws.
- 3 Align rocket nozzle bulkhead to workbench hole pattern.
- 4 Install steel screws securing rocket nozzle bulkhead to workbench. Torque to 3.0 ± 0.5 in-lb (33.9 ± 5.6 Ncm).
- (d) Assemble Rocket Motor. (See Figure 95-01-0110)

CAUTION: Inspect propellant grains for damage. Do not use if cracks, fractures or other signs of breakage are apparent.

- 1 Install lubricated o-rings into two upper outer grooves of rocket nozzle bulkhead.

WARNING: Fine powder debris could create an explosion danger. Use care not to break propellant during insertion.

- 2 Slide upper propellant grain into rocket motor case.
- 3 Slide o-ring into rocket motor case.
- 4 Orient lower propellant grain so that deep, recessed end of lower propellant grain is visible from open end of rocket motor case.
- 5 Slide lower propellant grain into rocket motor case.

CAUTION: Do not damage O-rings. Insert rocket nozzle bulkhead into rocket motor case slowly.

- 6 Carefully twist rocket motor case right and left while pushing down to engage rocket motor case onto rocket nozzle bulkhead and o-rings.
- 7 Align hole in bottom groove of rocket nozzle bulkhead with Ortman key slot in rocket motor case.
- 8 At lower side of rocket motor case, insert pointed tip of Ortman key into right side of slot.

Note: To improve strap grip on rocket motor case, position rubber traction mat between rocket motor case and strap.

- 9 Using large strap wrench at top of rocket motor case, slightly rotate rocket motor case clockwise while observing exposed tip of Ortman key. As tip of key retracts into rocket motor case, continue to rotate rocket motor case until key is completely retracted.

CAUTION: Do not over rotate Ortman key into slot. Verify end of key remains visible in slot and is below flush with rocket motor case.

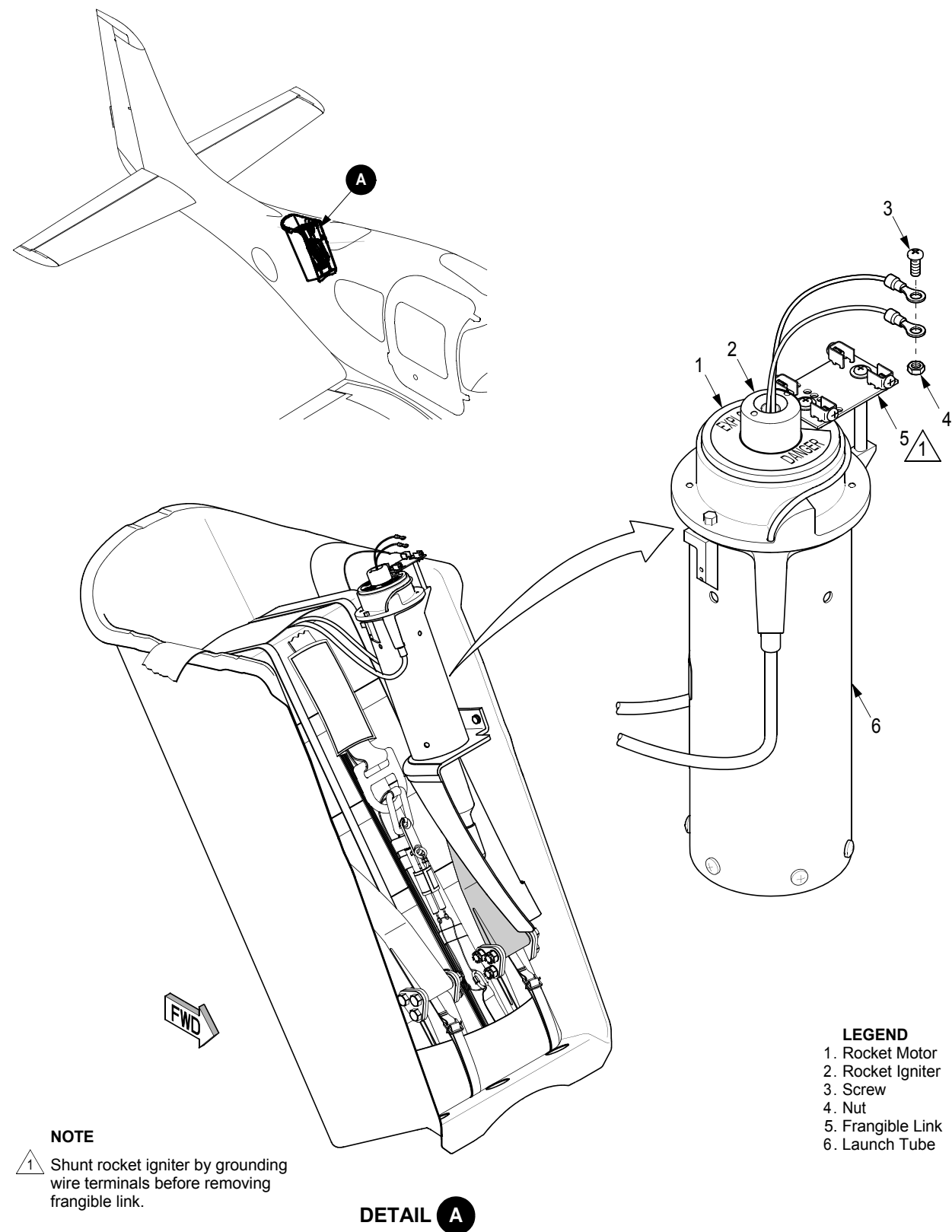
Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17, 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs: When assembled, verify Ortman key hole in bulkhead is in line with alignment mark in motor case.

- 10 *Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17, 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Verify frangible link hole on rocket motor case aligns with longer anchor block on launch tube.
 - a. Remove and retain steel screws securing rocket nozzle bulkhead to workbench.
 - b. Position bottom of rocket motor (nozzle end) to launch tube.
 - c. Carefully insert rocket motor into launch tube.
 - d. Temporarily install nylon screws securing rocket base to rocket motor. Install to finger tight only.

CAUTION: Do not cross thread or over-tighten nylon screws.

Note: Do not apply plastic fastener threadlocker to nylon screws.

- e. Perform Inspection/Check - Rocket Motor Case Alignment. ([Refer to 95-01-01](#))
 - f. Remove and retain nylon screws securing rocket base to rocket motor.
 - g. Remove rocket motor from launch tube.
- 11 At circumference of Ortman key slot, apply silicone sealant to Ortman key slot ensuring slot is sealed and free of air bubbles.
- 12 Remove and discard steel screws securing rocket nozzle bulkhead to workbench.



SR20_CM95_3711

Figure 95-01-018

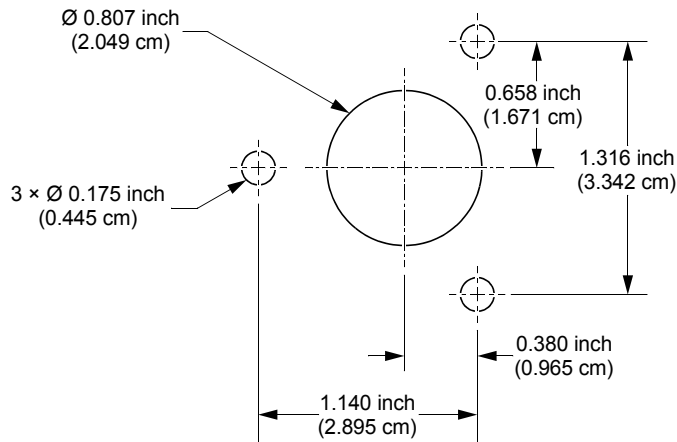
Rocket Igniter - Serials 1005 & subs w/o Perspective after SB2X-95-17, SB2X-95-18, or SB2X-95-20, 2228 & subs

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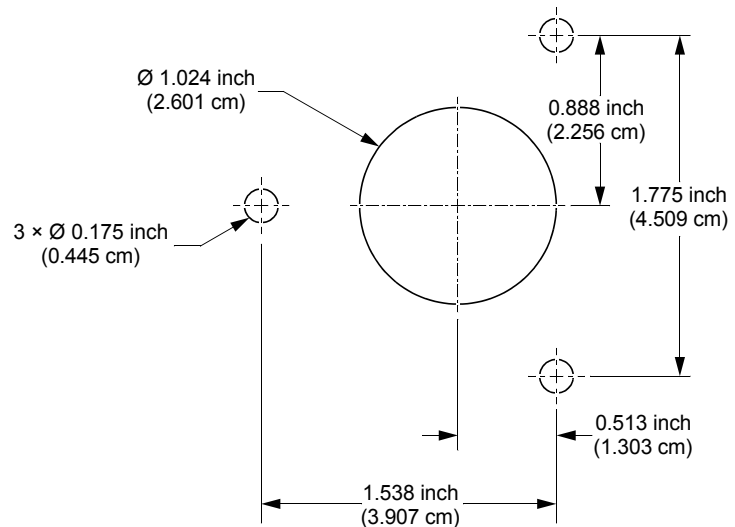
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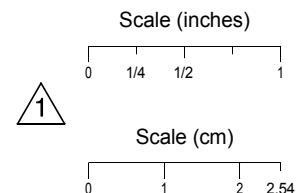
Serials 1005 & subs w/o Perspective after SB2X-95-17, SB2X-95-18, or SB2X-95-20, 2228 & subs



*Serials 1005 thru 1267 before SB2X-95-20,
1268 thru 1422 before SB2X-95-17,
1423 & subs w/o Perspective before SB2X-95-18,
2016 thru 2227.*



*Serials 1005 thru 1267 after SB2X-95-20,
1268 thru 1422 after SB2X-95-17,
1423 & subs w/o Perspective after SB2X-95-18,
2228 & subs.*



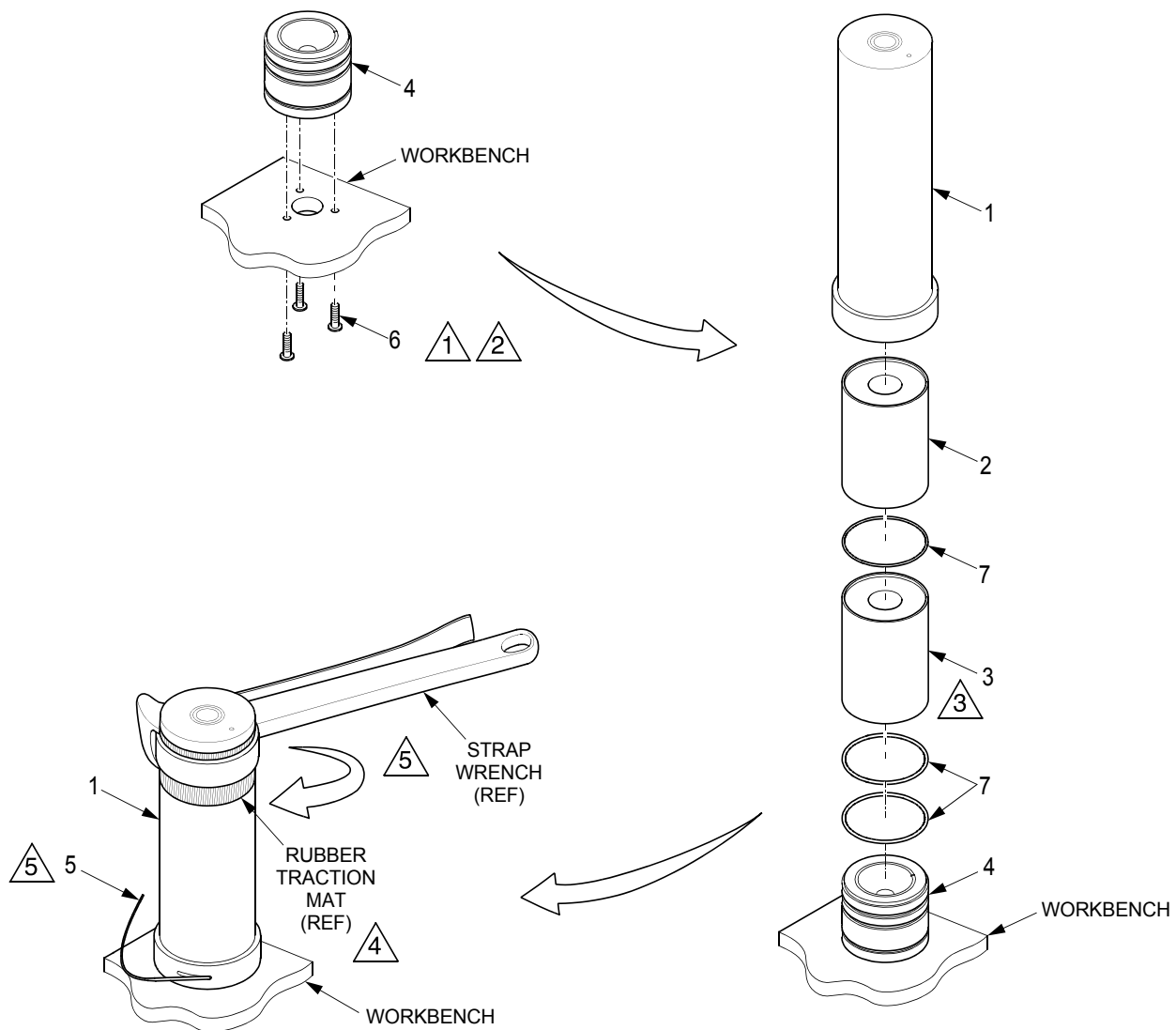
NOTE
 Verify template is printed to scale.

ROCKET NOZZLE WORKBENCH TEMPLATE

SR20_CM95_3572C

Figure 95-01-019
Rocket Nozzle Template

EFFECTIVITY:
 Serials 1005 & subs w/o Perspective after SB2X-95-17,
 SB2X-95-18, or SB2X-95-20, 2228 & subs



ROCKET NOZZLE WORKBENCH INSTALLATION

NOTE

- ① Do not use nylon screws to secure rocket nozzle bulkhead to workbench.
- ② Install steel screws securing rocket nozzle bulkhead to workbench.
Torque to 3.0 ± 0.5 in-lb (33.9 ± 5.6 Ncm).
- ③ Orient lower propellant grain so that deep, recessed end of lower propellant grain is visible from open end of rocket motor case.
- ④ To improve strap grip on rocket motor case, position rubber traction mat between rocket motor case and strap.
- ⑤ Using large strap wrench at top of rocket motor case, slightly rotate rocket motor case clockwise while observing exposed tip of Ortman key. As tip of key retracts into rocket motor case, continue to rotate rocket motor case until key is completely retracted.

LEGEND

- 1. Rocket Motor Case
- 2. Upper Propellant Grain
- 3. Lower Propellant Grain
- 4. Rocket Nozzle Bulkhead
- 5. Ortman Key
- 6. Screw
- 7. O-Ring

SR2X_CM95_3306A

Figure 95-01-0110
Rocket Motor

95-01-01

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EFFECTIVITY:
All

(5) Reassembly - Rocket Assembly

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

Description	P/N or Spec.	Supplier	Purpose
Threadlocker, Light	Loctite 222	Any Source	Bond screws.
Threadlocker, Plastic Fastener	Loctite 425	Any Source	Bond screws.
<i>Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17, 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:</i> Spanner Wrench	-	Any Source	Install igniter.
<i>Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17, 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:</i> Torque Wrench Adapter, 3/4"	-	Any Source	Install igniter.
<i>Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17, 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:</i> Spanner Wrench Adapter	T11849	Cirrus Design	Install igniter.

(b) Inspect rocket assembly and attaching parts. (See Figure 95-01-0113)

- 1 *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Verify rocket igniter condition.
 - a. Verify foil seal on rocket igniter is intact.
 - b. Verify safety wire is installed through firing pin actuator on bottom of rocket igniter.
- 2 Verify surfaces of launch tube, rocket base, and rocket motor are clean and free of any debris.

(c) Inspect inner diameter of pick-up collar for surface irregularities. If irregularities exist, perform the following:

- 1 Acquire necessary tools, equipment, and supplies.

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

Description	P/N or Spec.	Supplier	Purpose
Threadlocker, Medium	Loctite 242	Any Source	Bond screws.

- 2 *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Remove surface irregularities from pick-up collar.

- Remove countersunk screws securing pick-up collar support to pick-up collar.
- 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.
- Use half-round file as required to remove bumps.
- Solvent clean with isopropyl alcohol. (Refer to AMM 20-30)
- Apply primer to affected area.

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!

- Position pick-up collar support to upper side of pick-up collar.
- 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.

- Inspect countersunk screws removed previously from pick-up collar for damage. Replace countersunk screws as required.
- Apply medium threadlocker to countersunk screws removed previously from pick-up collar.
- Install countersunk screws securing pick-up collar support to pick-up collar.

- 3 *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Remove surface irregularities from pick-up collar.

- Use half-round file as required to remove bumps.
- Solvent clean with isopropyl alcohol. (Refer to AMM 20-30)
- Apply primer to affected area.

- (d) *Serials 1005 & subs w/o Aircraft Data Logger:* If plug P1046 is installed to anchor block on launch tube, remove wire harness assembly from launch tube.

- (e) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Install rocket igniter. (See Figure 95-01-0113)

- Slide o-ring into top of rocket motor case.
- Carefully slide rocket igniter into rocket motor.
- Using spanner wrench, rotate rocket igniter clockwise to rocket motor. Using spanner wrench adapter, torque to 25.0 - 30.0 ft-lb (33.9 - 40.6 Nm).

- (f) Install rocket motor to rocket base. (See Figure 95-01-0113)

- 1 Position bottom of rocket motor (nozzle end) to launch tube.
- 2 Carefully insert rocket motor into launch tube.
- 3 *Serials 1005 thru 1267 after SB2X-95-20,*
Serials 1268 thru 1422 after SB2X-95-17,
Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs: If frangible link hole on rocket motor case does not align with longer anchor block on launch tube, perform Inspection/Check - Rocket Motor Case Alignment. (Refer to 95-01-01)
- 4 Apply plastic fastener threadlocker to nylon screws.
- 5 Install nylon screws securing rocket base to rocket motor. Torque to 3.0 ±0.5 in-lb (33.9 ±5.6 Ncm).

CAUTION: Do not cross thread or over-tighten nylon screws.

- (g) *Serials 1005 thru 1422:* 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 rocket motor and safety wire.
 - (h) *Serials 1423 & subs:* Install rocket shelf assembly.
 - 1 Slide rocket shelf assembly over rocket motor and position shelf to rocket motor screw holes.
 - 2 Install screws and washers securing shelf assembly to rocket motor and safety wire.
 - (i) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Secure firing pin actuator.
 - 1 Carefully remove safety wire from firing pin actuator.
 - 2 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.
 - 3 Apply light threadlocker to screws used to secure rocket cone to rocket igniter.
 - 4 Position and secure rocket cone onto rocket igniter with screws.
- (6) Installation - Rocket Assembly

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

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

Description	P/N or Spec.	Supplier	Purpose
Rocket Assembly	Reference Parts List	Cirrus Design	N/A
Threadlocker, Light	Loctite 222	Any Source	Bond screws.
Threadlocker, Medium	Loctite 242	Any Source	Bond screws.
Magnetized Screw-driver	-	Any Source	Install screws.

Description	P/N or Spec.	Supplier	Purpose
<i>Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17: Grommet</i>	Reference Parts List	Any Source	Replace grommet.
<i>Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17: Epoxy Adhesive</i>	5 Minute Epoxy	Devcon Danvers, MA 01923 800-933-8266	Seal grommet.

- (b) Ensure safety pin is installed.
- (c) Record rocket serial number in airplane log book.
- (d) Slide pick-up collar assembly onto rocket assembly.
- (e) Verify pick-up collar assembly slides freely on rocket assembly.
- (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) Apply medium threadlocker to aluminum tension screws.

CAUTION: Do not overtighten aluminum tension screws.

- (h) Install aluminum tension screws securing pick-up collar assembly to rocket launch tube using nut driver. Torque to 1 - 5 in-lb (12 - 56 Ncm).
- (i) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs: Install frangible link. (See Figure 95-01-0112)*

- 1 Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Epoxy Adhesive	5 Minute Epoxy	Devcon Danvers, MA 01923 800-933-8266	Install cable anchors.
Cable Anchors	EMS-A-DO	Panduit Tinley Park, IL 60487 800-777-3300	Secure wiring.
Cable Ties	PLT2S-C		
Expandable Sleeving, 1/8"	GRP-120-1/8	Alpha Wire Elizabeth, NJ 07207 800-522-5742	Secure wiring.
Heatshrink Tubing, 3/8"	M23053/5-107-0	Any Source	Secure wiring.

WARNING: Position frangible link such that perforated break line is on end closest to rocket. Failure to comply will absolutely FAIL rocket deployment!

- 2 Install screws, washers, and standoffs securing frangible link to rocket assembly.
- 3 Install anchors and cable ties to prepared surface on side of launch tube using adhesive. Wrap wires with tape as required to ensure security under cable ties.
- 4 Secure terminal rings (TR1453 and TR1455) from rocket igniter to frangible link with screws and washers.
- 5 Secure terminal rings (TR1454 and TR1456) from wiring harness to frangible link with screws and washers.
- 6 Secure terminal rings (TR2701 and TR2702) from wiring harness to top of igniter switch with nuts and washers.
- 7 At igniter switch, position nipples over terminals.
- 8 Secure R2700 and wires to anchor at back of rocket shield with cable tie.
- 9 Position terminal ring (TR2705) from wiring harness and loop from activation cable to linkage at bottom of igniter switch, and secure with bolt, washers, and nut.

Note: Orient linkage as shown and position ring lug downward and towards front of aircraft.

- 10 At upper rocket shield, place one 3 inch section of sleeving over both wires and secure to inside of rocket shield using cable tie and holes in shield.
- 11 Ensure sleeving extends above rocket shield edge 1.0 ± 0.5 inch (2.54 ± 1.27 mm). Secure sleeving at ends with cable ties to prevent fraying.
- 12 Place 3 inch sections of sleeving on each wire. Position sleeving as shown and secure both to standoff using cable tie. Secure sleeving at ends with cable ties to prevent fraying.
- 13 *Serials 2228 & subs:* Cover terminal ring (TR2706) with heatshrink and stow.

- (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 ends of lanyard routed aft do not wrap around forward portion of rocket assembly.

Do not snag rocket assembly on parachute or surrounding structure while installing.

- (n) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Remove safety wire securing firing pin actuator to rocket igniter.
- (o) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17:* Connect activation cable to rocket assembly.
- 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 light threadlocker to screws used to secure rocket cone to rocket igniter.
- 3 Position and secure rocket cone onto rocket igniter with screws.
- 4 Apply light threadlocker to screw used to secure activation cable to firing pin actuator.
- 5 Insert cable loop into firing pin actuator slot on rocket 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 1/3 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 Install access hole plug to rocket cone.
- (p) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17:* Install rocket assembly.
- 1 Position and secure rocket assembly, shim, and backing plate to BH 222 with bolts and washers.
 - 2 Remove and discard existing cable grommet. Remove any RTV sealant residue from shield slot.
 - 3 Apply RTV sealant to outer edge of new cable grommet and install at shield slot. Wipe off excess sealant.
 - 4 Verify activation cable is routed through shield slot and secured with cable grommet.
- (q) *Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17:* Install rocket assembly.
- 1 Position and secure rocket assembly, shim, and backing plate to BH 222 with bolts and washers.
- (r) *Serials 1423 thru 1624 before SB2X-95-18:* Install 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 Position and secure rocket assembly to parachute compartment with bolts and washers.
 - 3 Install bolts and washers securing cross beam to BH 222.
 - 4 Install bolts, washers, and nuts securing rocket assembly bracket to BH 222 cross beam.
- (s) *Serials 1423 thru 1624 after SB2X-95-18, 1625 & subs:* Install rocket assembly.
- 1 Position and secure rocket assembly to BH 222 cross beam with bolts and washers.
- (t) *Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Connect activation cable to rocket assembly.
- 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 light threadlocker to screws used to secure rocket cone to rocket igniter.
 - 3 Position and secure rocket cone onto rocket igniter with screws.
 - 4 Apply light threadlocker to screw used to secure activation cable to firing pin actuator.

- 5 Insert cable loop into firing pin actuator slot on rocket 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 1/3 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 Install access hole plug to rocket cone.
- (u) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Connect activation cable to rocket assembly.
- 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 when installed.
 - 2 Apply light threadlocker to screw used to secure activation cable to firing pin actuator.
 - 3 Insert cable loop into firing pin actuator slot on igniter switch 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 1/3 lb (0.113 kg) is all that is required to verify capture.

- 4 Slightly pull cable projecting from igniter switch to verify firing pin capture.
- (v) *Serials 1886 & subs w/ Aircraft Data Logger:* Connect plug P1046 to jack J1046 and secure wire harness with cable ties to existing cable anchors on rocket shield.
- (w) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Connect plug P2701 to jack J2701 and secure wire harness with cable ties to existing cable anchors on rocket shield.
- (x) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Verify LH edge of pick-up collar is oriented approximately 30° away from BH 222.
- (y) *Serials 1005 thru 1267 after SB2X-95-20, Serials 1268 thru 1422 after SB2X-95-17, Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Verify LH edge of pick-up collar is oriented approximately 45° away from BH 222.
- (z) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17, Serials 1423 & subs w/o Perspective before SB2X-95-18, 2016 thru 2227:* Verify minimum gap of 0.40 inch (10.16 mm) exists between outer diameter of pick-up collar ring and aft side of BH 222.
- (aa) *Serials 1005 thru 1267 after SB2X-95-20*

*Serials 1268 thru 1422 after SB2X-95-17,
Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Verify minimum gap of 0.13 inch (3.30 mm) exists between outer diameter of pick-up collar ring and aft side of BH 222.

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

Do not measure at lanyard legs extending outward from pickup collar.

- (ab) Feed remaining lanyard aft until slack is removed and the lanyard is coiled back into the stowage pocket in the parachute assembly. Ensure ends of lanyard routed aft do not wrap around forward portion of rocket assembly 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!

Verify rocket lanyard is routed around back of rocket and aft parachute harness, NOT around front. Failure to comply will absolutely FAIL rocket deployment!

- (ac) Verify rocket lanyard is positioned around top outer diameter of pick-up collar support.
- (ad) Carefully feed spiral wrap cable into adjustable bushing pass-through hole until slack is removed.
- (ae) Reposition CAPS harness.
- (af) Remove catch cloth from below rocket and parachute assembly.
- (ag) Using a vacuum cleaner, remove all debris from fuselage floor.
- (ah) Visually inspect parachute compartment for security, leaks, loose or missing hardware, moisture, and general condition.
- (ai) Install access panel CB7 to BH 222. (Refer to AMM 6-00)
- (aj) Install BH 222 trim panel and carpet. (Refer to AMM 25-10)
- (ak) *Serials 1005 thru 1267 after SB2X-95-20,
Serials 1268 thru 1422 after SB2X-95-17,
1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs:* Connect battery 1. (Refer to AMM 24-30)

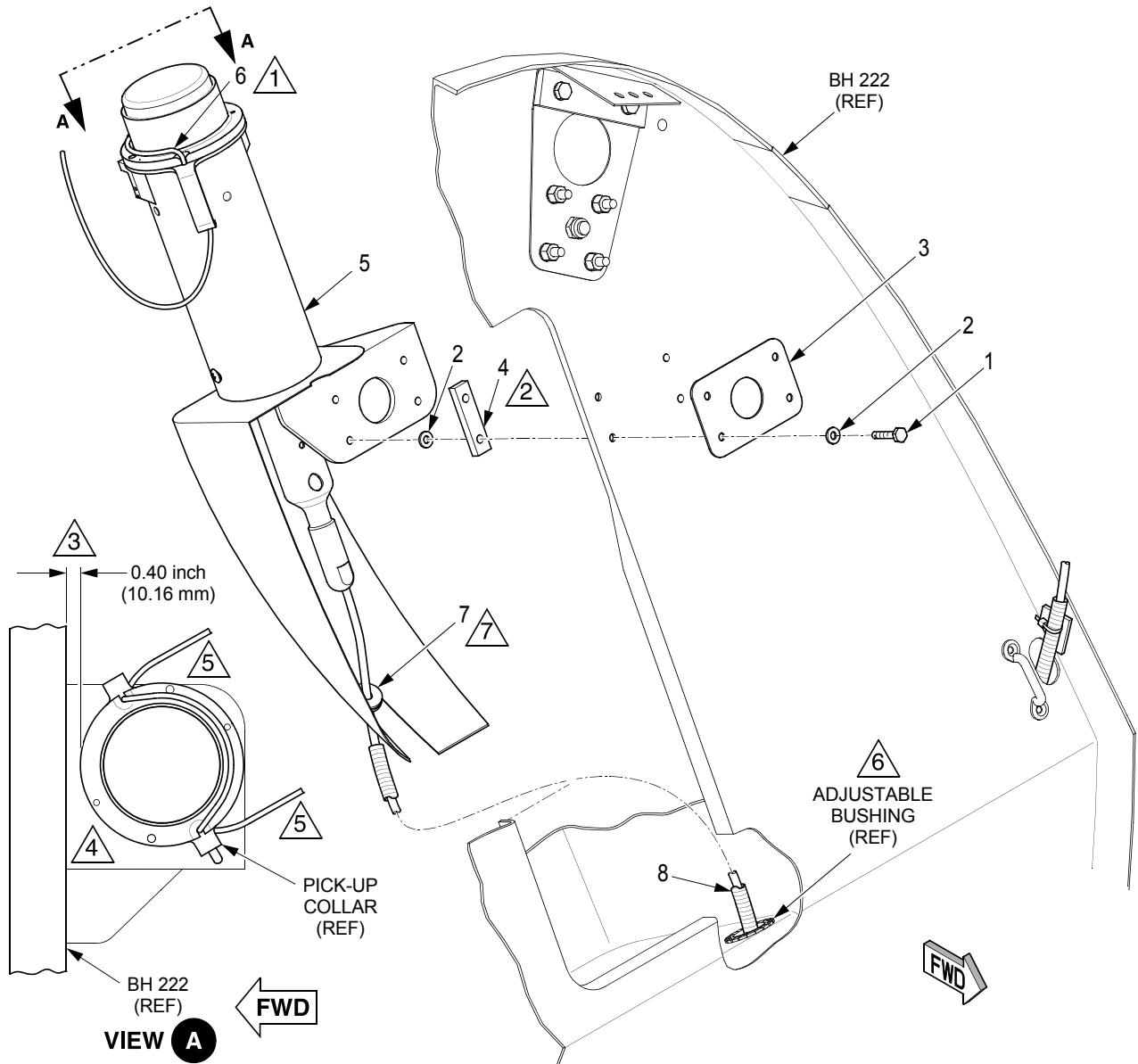
(7) Inspection/Check - Rocket Motor Case Alignment

- (a) Verify frangible link hole on rocket motor case aligns with longer anchor block on launch tube.
- (b) If frangible link hole and anchor block do not align, adjust rocket motor case.
 - 1 Remove and retain nylon screws securing rocket base to rocket motor.
 - 2 Remove rocket motor from launch tube.
 - 3 Return rocket motor to workbench.
 - 4 Reinstall steel screws securing rocket nozzle bulkhead to workbench. Torque to 3.0 ±0.5 in-lb (33.9 ±5.6 Ncm).
 - 5 Using large strap wrench at top of rocket motor case, slightly rotate rocket motor case until frangible link hole aligns with longer anchor block.

CAUTION: Do not over rotate Ortman key into slot.

- 6 Verify end of key remains visible in slot and is below flush with rocket motor case.
- 7 Repeat Inspection/Check - Rocket Motor Case Alignment.

EFFECTIVITY:
All



Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17.

NOTE

- 1 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!
- 2 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.
- 3 Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.
- 4 Verify LH edge of pick-up collar is oriented away from BH 222.
- 5 Ensure lanyard does not wrap around forward portion of rocket assembly.
- 6 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.
- 7 Apply epoxy to outer edge of new cable grommet and install at shield slot. Wipe off excess epoxy.

LEGEND

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

SR20_CM95_1538G

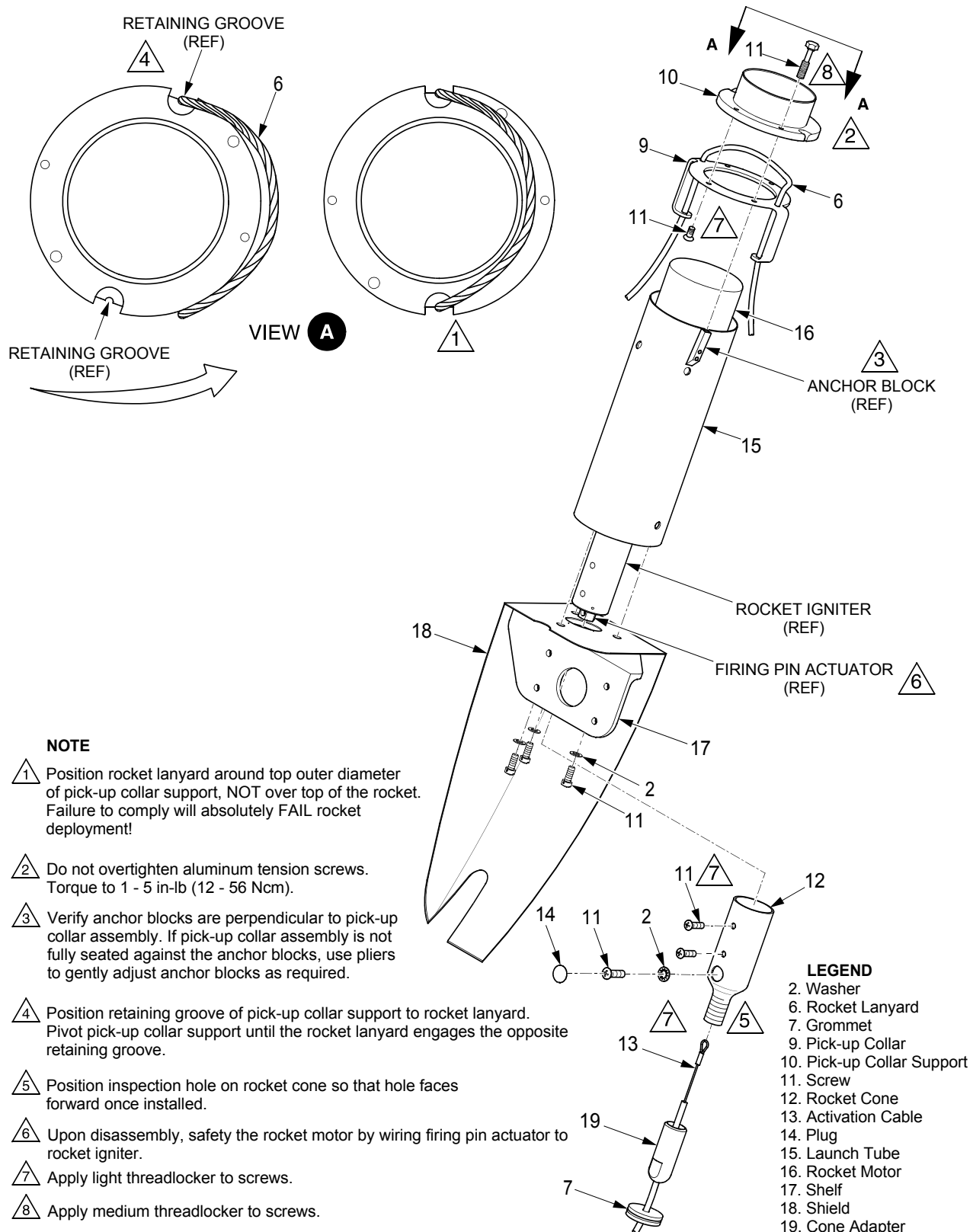
Figure 95-01-0111

Rocket Installation - Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17 (1 of 10)

EFFECTIVITY:

Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17

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Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17.

SR20_CM95_1537E

Figure 95-01-0111

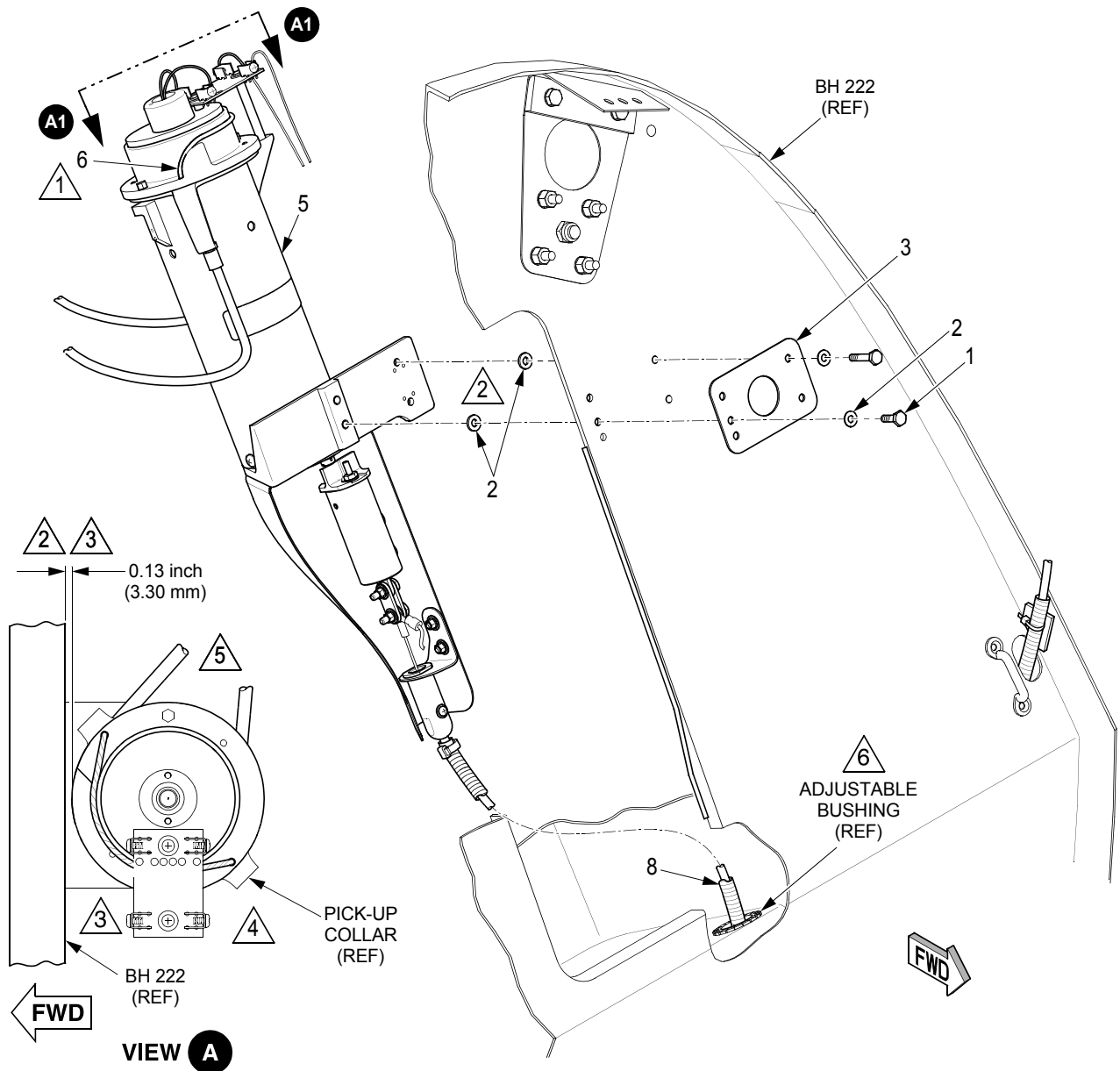
Rocket Installation - Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17 (2 of 10)

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EFFECTIVITY:

Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17



Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17.

NOTE

1. 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!
2. Washers as required to achieve correct gap between pick-up collar and BH 222. Failure to do so may result in an incorrect rocket installation and subsequent deployment failure.
3. Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.
4. Verify LH edge of pick-up collar is oriented away from BH 222.
5. Ensure ends of lanyard routed aft do not wrap around forward portion of rocket assembly.
6. 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
5. Rocket Assembly
6. Rocket Lanyard
8. Spiral Wrap

SR20_CM95_3604

Figure 95-01-0111

Rocket Installation - Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17 (3 of 10)

EFFECTIVITY:

Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17

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NOTE

- 1 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!
- 2 Do not overtighten aluminum tension screws. Torque to 1 - 5 in-lb (12 - 56 Ncm).
- 3 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.
- 4 Apply light threadlocker to screws.
- 5 Apply medium threadlocker to screws.
- 6 Position frangible link such that perforated break line is on end closest to rocket. Failure to comply will absolutely FAIL rocket deployment!

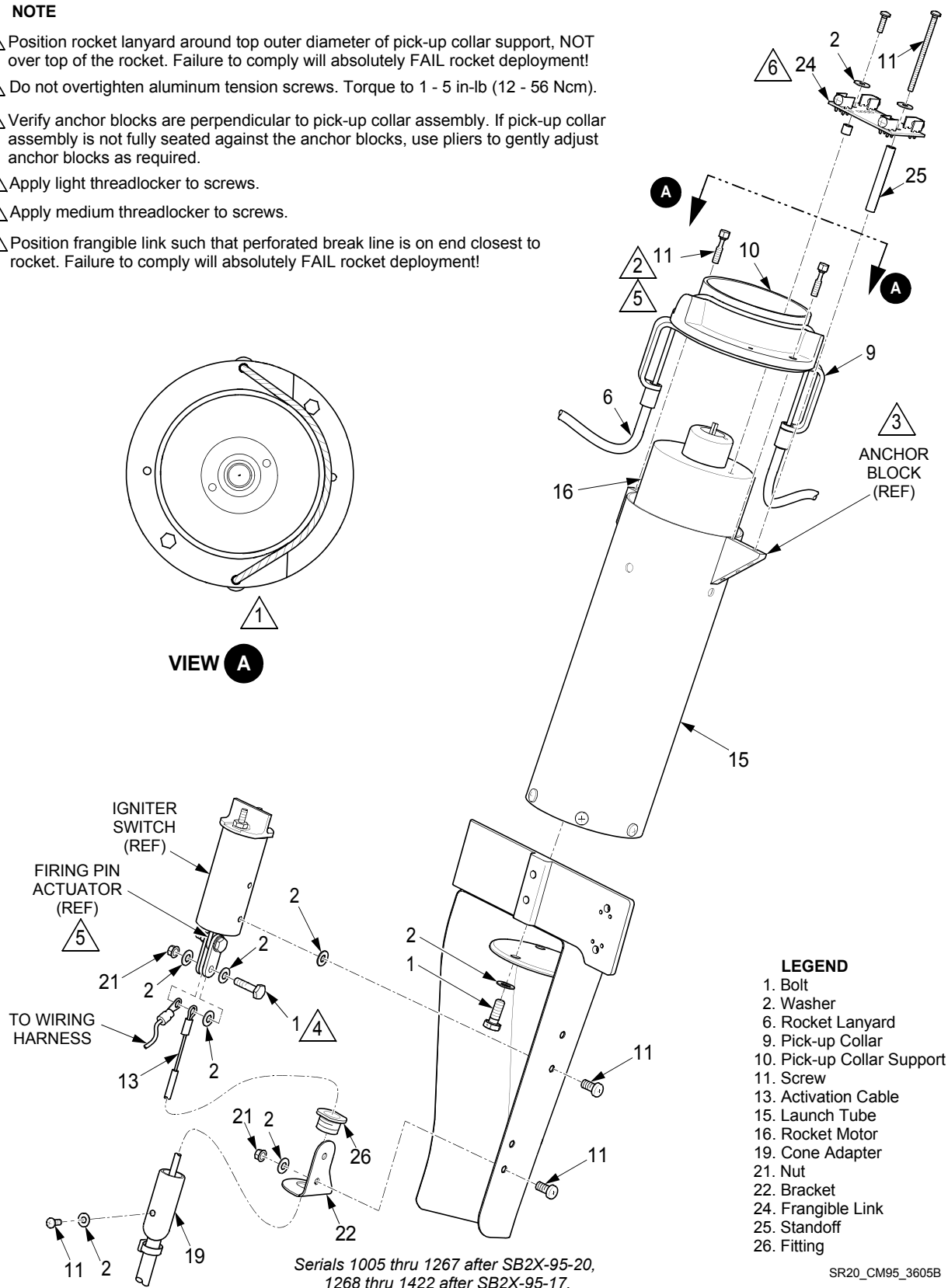


Figure 95-01-0111

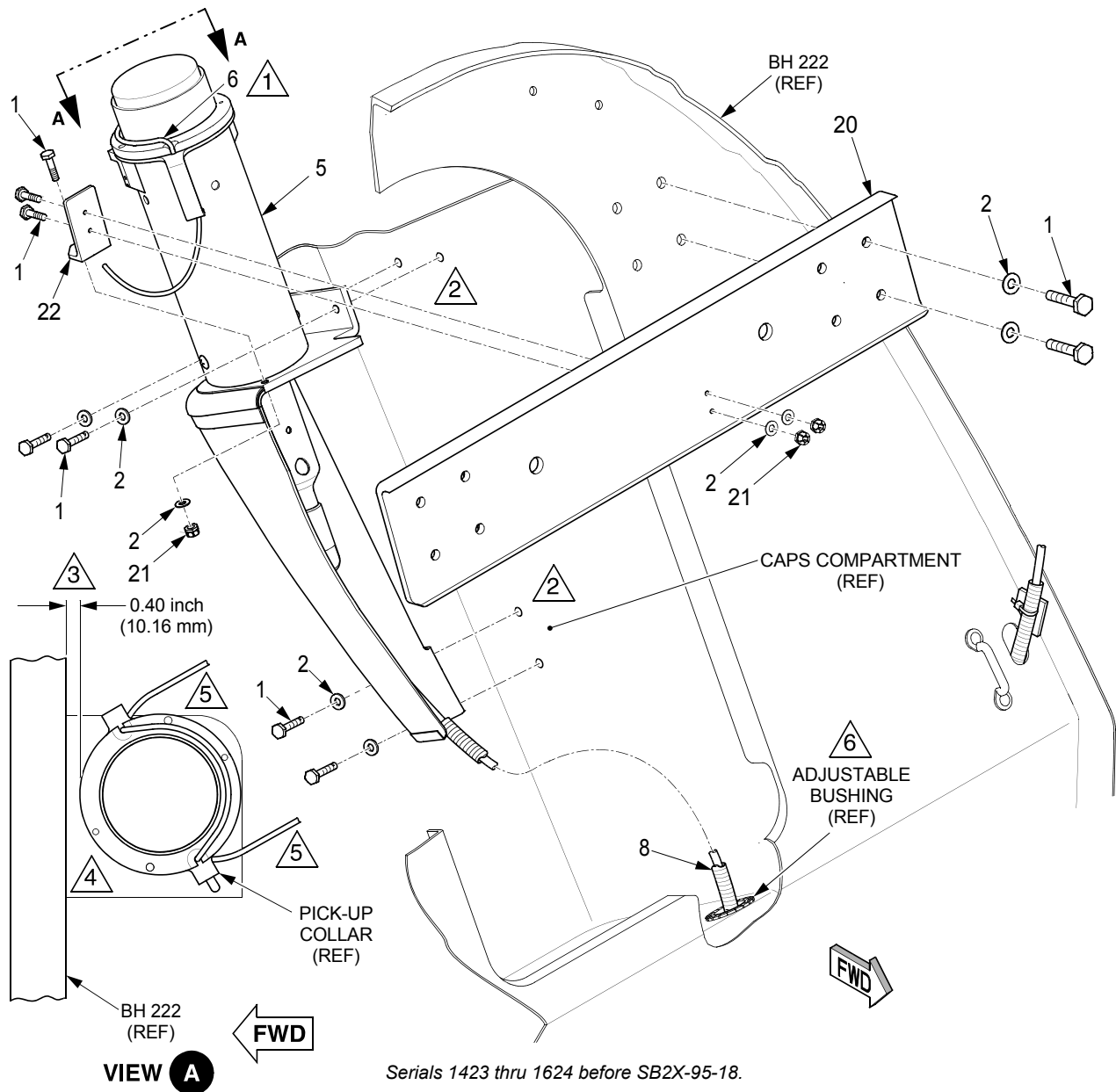
Rocket Installation - Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17 (4 of 10)

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EFFECTIVITY:

Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17



Serials 1423 thru 1624 before SB2X-95-18.

NOTE

- 1 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!
- 2 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.
- 3 Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.
- 4 Verify LH edge of pick-up collar is oriented away from BH 222.
- 5 Ensure ends of lanyard routed aft do not wrap around forward portion of rocket assembly.
- 6 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
5. Rocket Assembly
6. Rocket Lanyard
8. Spiral Wrap
20. Cross Beam
21. Nut
22. Bracket

SR20_CM95_1815E

Figure 95-01-0111
Rocket Installation - Serials 1423 thru 1624 before SB2X-95-18 (5 of 10)

EFFECTIVITY:
Serials 1423 thru 1624 before SB2X-95-18

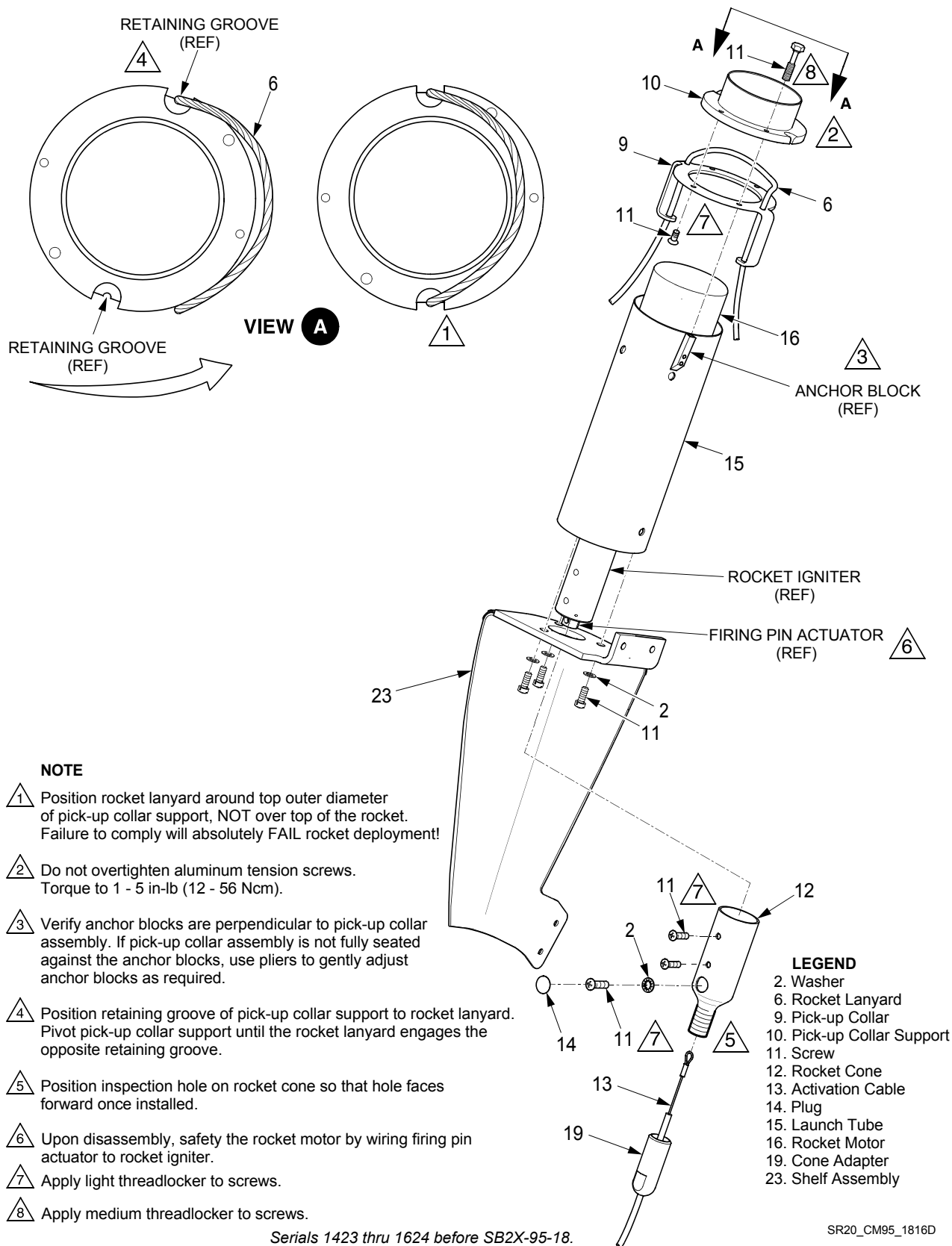
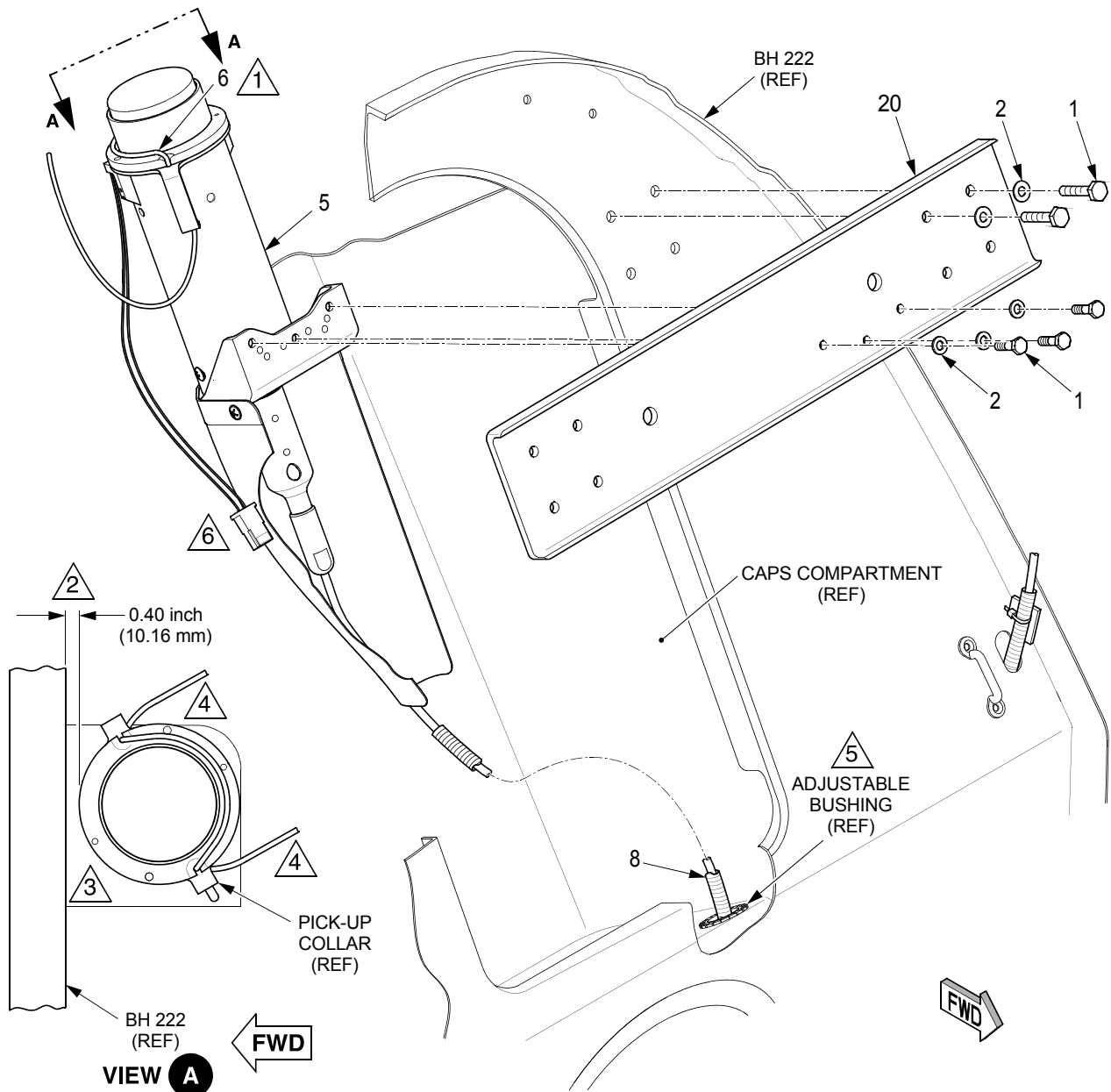


Figure 95-01-0111
Rocket Installation - Serials 1423 thru 1624 before SB2X-95-18 (6 of 10)

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EFFECTIVITY:
 Serials 1423 thru 1624 before SB2X-95-18



Serials 1625 thru 2227,
1625 thru 2227 w/o Perspective before SB2X-95-18.

NOTE

1. 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!
2. Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.
3. Verify LH edge of pick-up collar is oriented away from BH 222.
4. Ensure ends of lanyard routed aft do not wrap around forward portion of rocket assembly.
5. 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.
6. Serials 1886 & subs w/ Aircraft Data Logger: Connect plug P1046 to jack J1046 and secure wire harness with cable ties to existing cable anchors on rocket shield.

LEGEND

1. Bolt
2. Washer
5. Rocket Assembly
6. Rocket Lanyard
8. Spiral Wrap
20. Cross Beam

SR20_CM95_2628C

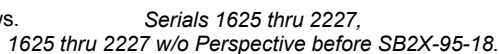
Figure 95-01-0111

Rocket Installation - Serials 1625 thru 2227, 1625 thru 2227 w/o Perspective before SB2X-95-18 (7 of 10)

EFFECTIVITY:

Serials 1625 thru 2227, 1625 thru 2227 w/o Perspective before SB2X-95-18

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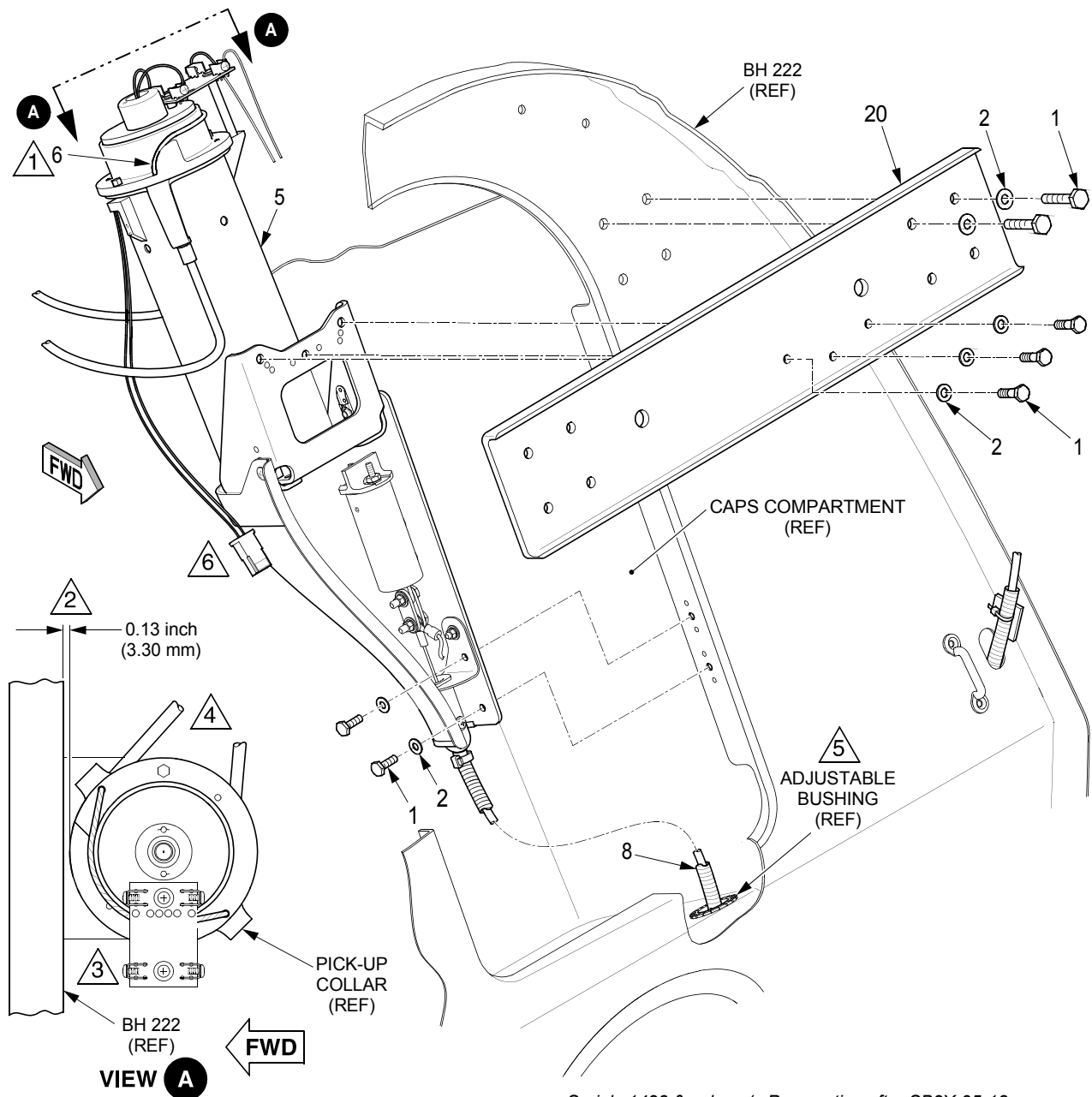


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Rocket Installation - Serials 1625 thru 2227, 1625 thru 2227 w/o Perspective before SB2X-95-18 (8 of 10)

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Serials 1625 thru 2227, 1625 thru 2227 w/o Perspective before SB2X-95-18



Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs.

NOTE

- 1 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!
- 2 Incorrect gap between outer diameter of pick-up collar and aft side of BH 222 may result in deployment failure.
- 3 Verify LH edge of pick-up collar is oriented away from BH 222.
- 4 Ensure ends of lanyard routed aft do not wrap around forward portion of rocket assembly.
- 5 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.
- 6 *Serials w/ Aircraft Data Logger:* Connect plug P1046 to jack J1046 and secure wire harness with cable ties to existing cable anchors on rocket shield.

LEGEND

1. Bolt
2. Washer
5. Rocket Assembly
6. Rocket Lanyard
8. Spiral Wrap
20. Cross Beam

SR20_CM95_3554B

Figure 95-01-0111

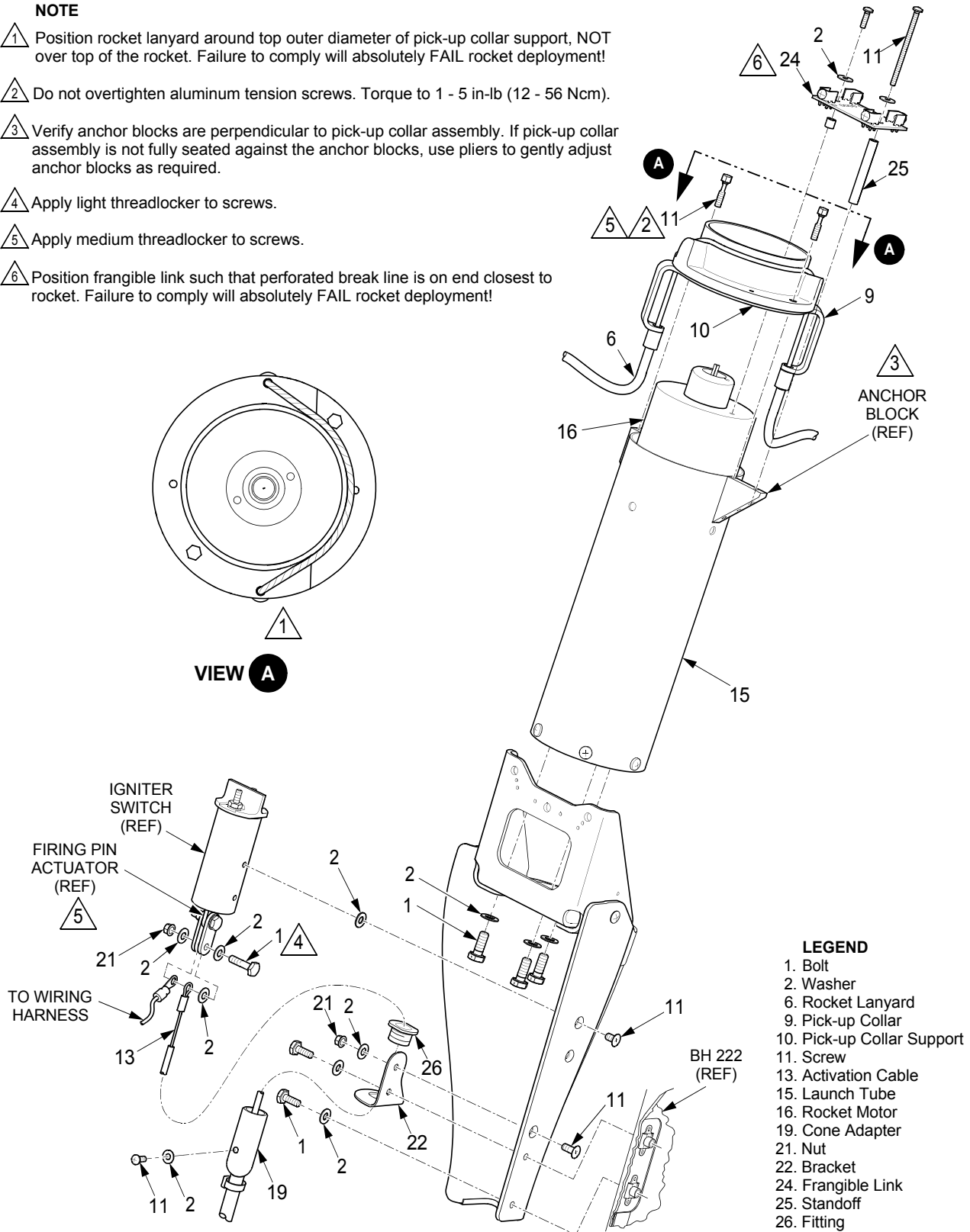
Rocket Installation - Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs (9 of 10)

EFFECTIVITY:
Serials 1423 & subs w/o Perspective after SB2X-95-18,
2228 & subs

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NOTE

- 1 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!
- 2 Do not overtighten aluminum tension screws. Torque to 1 - 5 in-lb (12 - 56 Ncm).
- 3 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.
- 4 Apply light threadlocker to screws.
- 5 Apply medium threadlocker to screws.
- 6 Position frangible link such that perforated break line is on end closest to rocket. Failure to comply will absolutely FAIL rocket deployment!



Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs.

SR20_CM95_3556C

Figure 95-01-0111

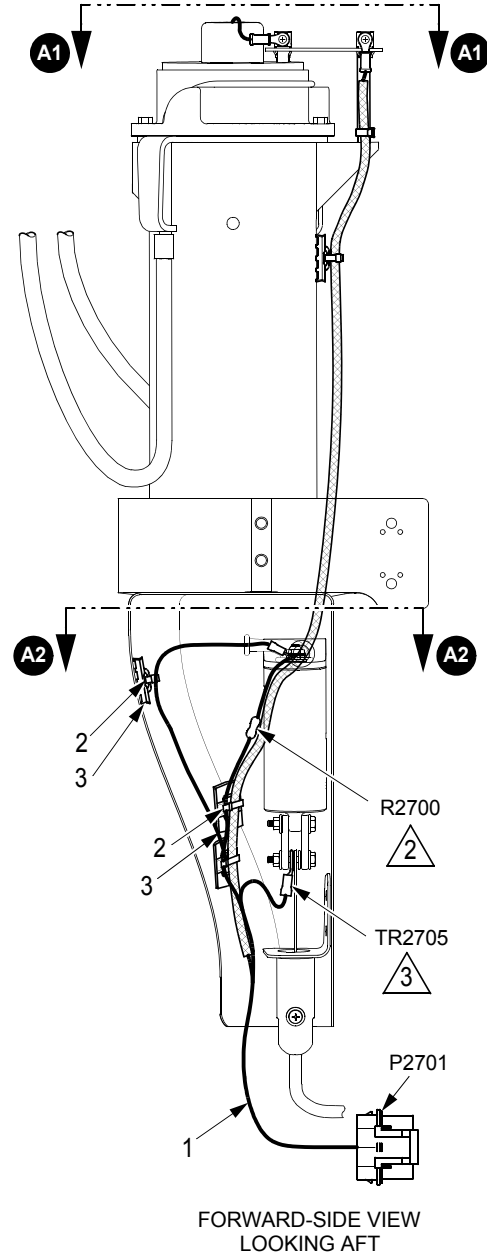
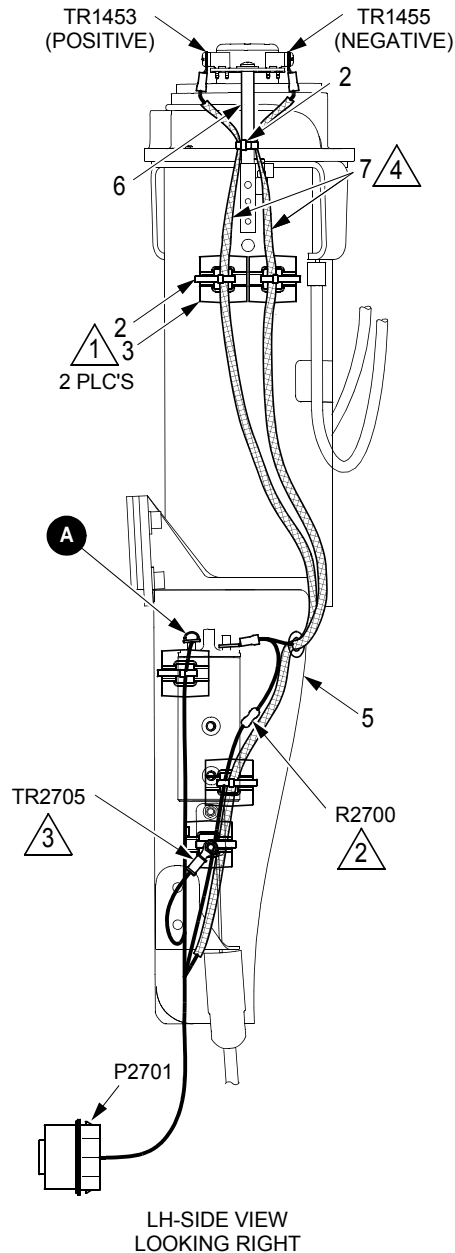
Rocket Installation - Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs (10 of 10)

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EFFECTIVITY:

Serials 1423 & subs w/o Perspective after SB2X-95-18, 2228 & subs



NOTE

1. Install anchors and cable ties to prepared surface on side of launch tube using adhesive. Wrap wires with tape as required to ensure security hold under cable ties.
2. Secure R2700 and wires to anchor at back of rocket shield with cable tie.
3. Install TR2705 as shown with hardware provided. Orient linkage as shown and position ring lug downward and towards front of aircraft.
4. Place sleeving on each wire. Position sleeving as shown and secure both to standoff using cable tie. Secure sleeving at ends with cable ties to prevent fraying.

LEGEND

1. Wiring Harness
2. Cable Tie
3. Cable Anchor
4. Igniter Switch
5. Rocket Shield
6. Standoff
7. Sleeving

Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17.

SR20_CM95_3606

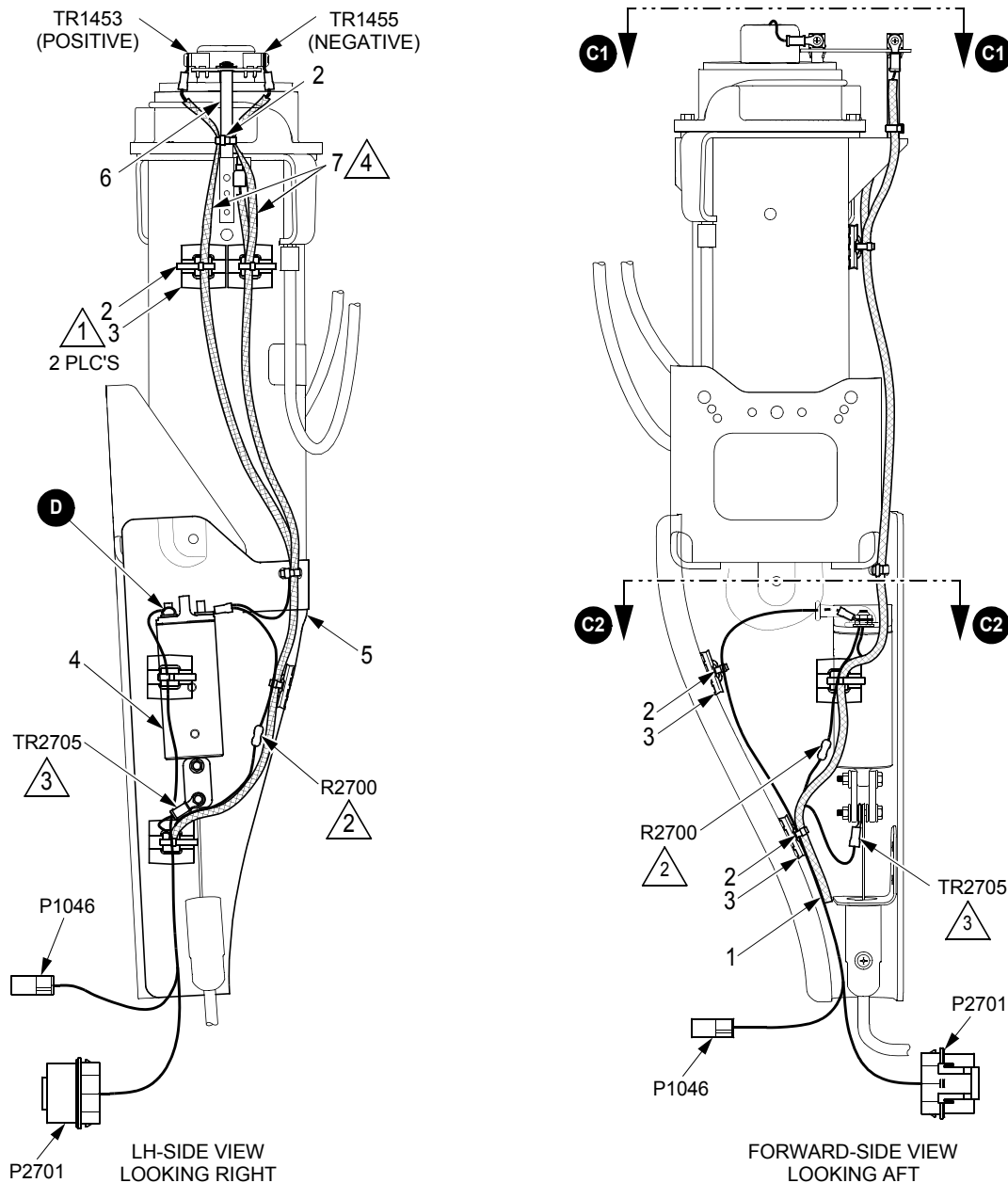
Figure 95-01-0112

Rocket Assembly Wiring - Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17 (1 of 4)

EFFECTIVITY:

Serials 1005 thru 1267 after SB2X-95-20, 1268 thru 1422 after SB2X-95-17

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NOTE

- 1 Install anchors and cable ties to prepared surface on side of launch tube using adhesive. Wrap wires with tape as required to ensure security hold under cable ties.
- 2 Secure R2700 and wires to anchor at back of rocket shield with cable tie.
- 3 Install TR2705 as shown with hardware provided. Orient linkage as shown and position ring lug downward and towards front of aircraft.
- 4 Place sleeving on each wire. Position sleeving as shown and secure to standoff using cable tie. Secure sleeving at ends with cable ties to prevent fraying.

LEGEND

- 1. Wiring Harness
- 2. Cable Tie
- 3. Cable Anchor
- 4. Igniter Switch
- 5. Rocket Shield
- 6. Standoff
- 7. Sleeving

Serials 1423 & subs w/o Perspective after SB2X-95-18.

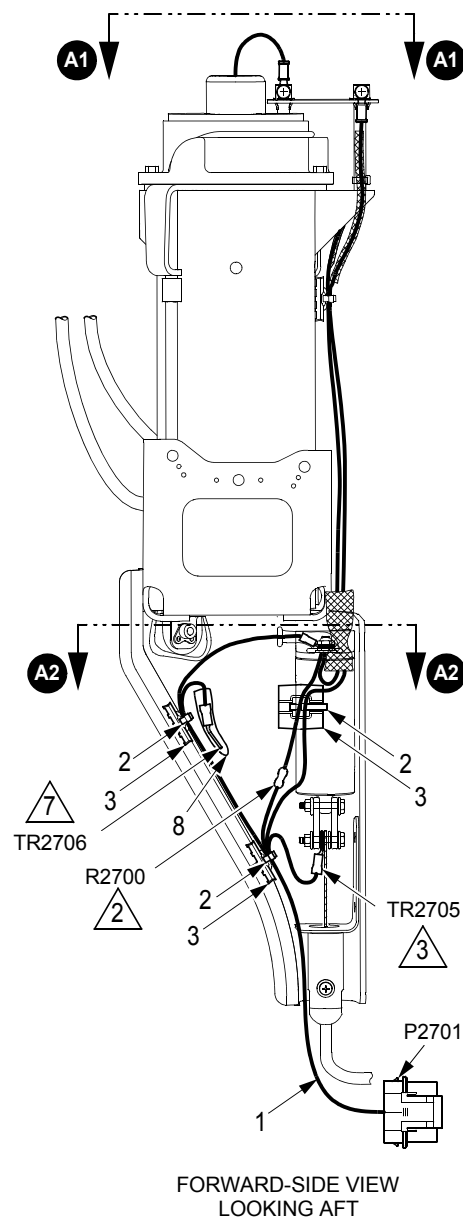
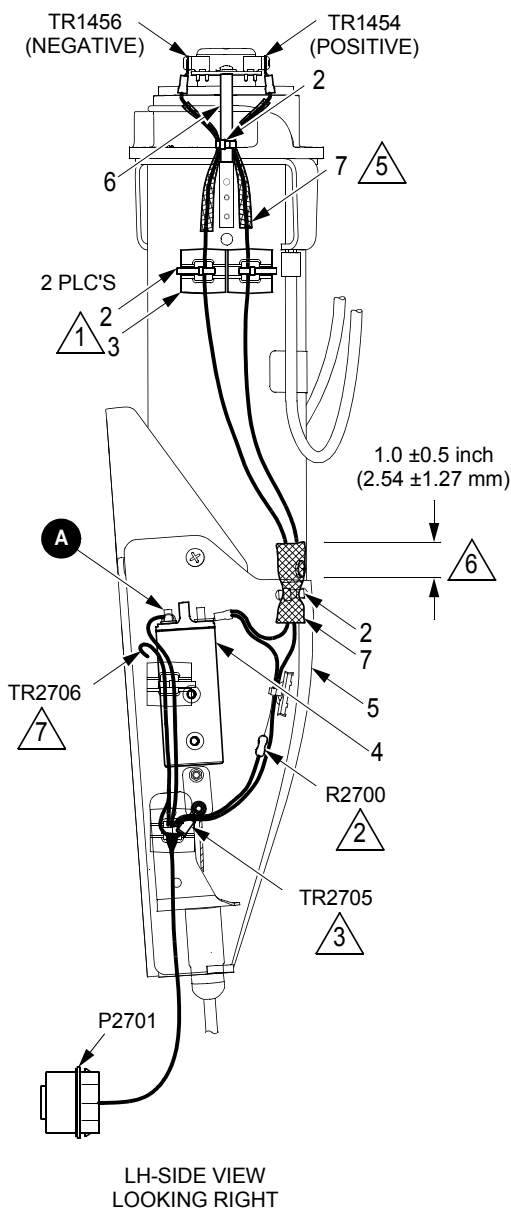
SR20_CM95_3619B

Figure 95-01-0112
Rocket Assembly Wiring - Serials 1423 & subs w/o Perspective after SB2X-95-18 (2 of 4)

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EFFECTIVITY:
Serials 1423 & subs w/o Perspective after SB2X-95-18



NOTE

1. Install anchors and cable ties to prepared surface on side of launch tube using adhesive. Wrap wires with tape as required to ensure security hold under cable ties.
2. Secure R2700 and wires to anchor at back of rocket shield with cable tie.
3. Install TR2705 as shown with hardware provided. Orient linkage as shown and position ring lug downward and towards front of aircraft.
5. Place 3 inch sections of sleeving on each wire. Position sleeving as shown and secure both to standoff using cable tie. Secure sleeving at ends with cable ties to prevent fraying.
6. At upper rocket shield, place one 3 inch section of sleeving over both wires and secure to inside of rocket shield using cable tie and holes in shield. Ensure sleeving extends above rocket shield edge 1.0 ± 0.5 inch (2.54 ± 1.27 mm). Secure sleeving at ends with cable ties to prevent fraying.
7. Cover terminal ring (TR2706) with heatshrink and stow.

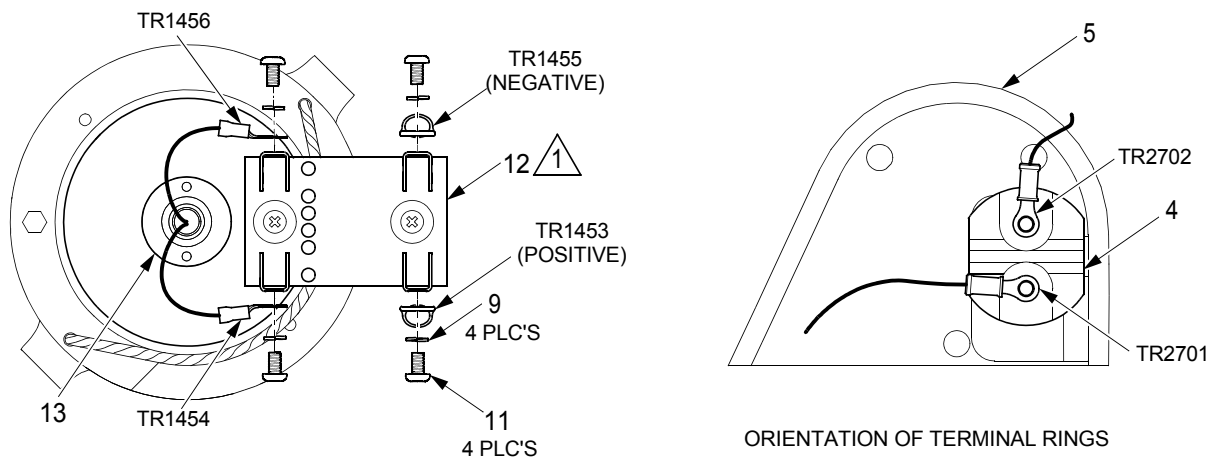
Serials 2228 & subs.

SR20_CM95_3579A

Figure 95-01-0112
Rocket Assembly Wiring - Serials 2228 & subs (3 of 4)

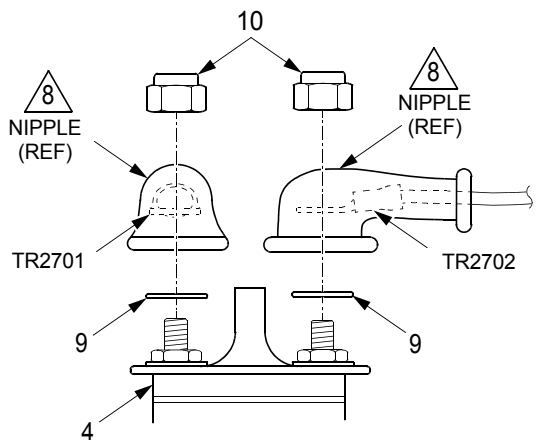
EFFECTIVITY:
Serials 2228 & subs

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VIEW A1

SECTION A2



DETAIL A

NOTE

- 1 Position frangible link such that perforated break line is on end closest to rocket. Failure to comply will absolutely FAIL rocket deployment!
- 8 At igniter switch, position nipples over terminals.

LEGEND

4. Igniter Switch
5. Rocket Shield
9. Washer
10. Nut
11. Screw
12. Frangible Link
13. Rocket Igniter

Serials 1005 thru 1267 after SB2X-95-20,
1268 thru 1422 after SB2X-95-17,
1423 & subs w/o Perspective after SB2X-95-18,
2228 & subs.

SR20_CM95_3607A

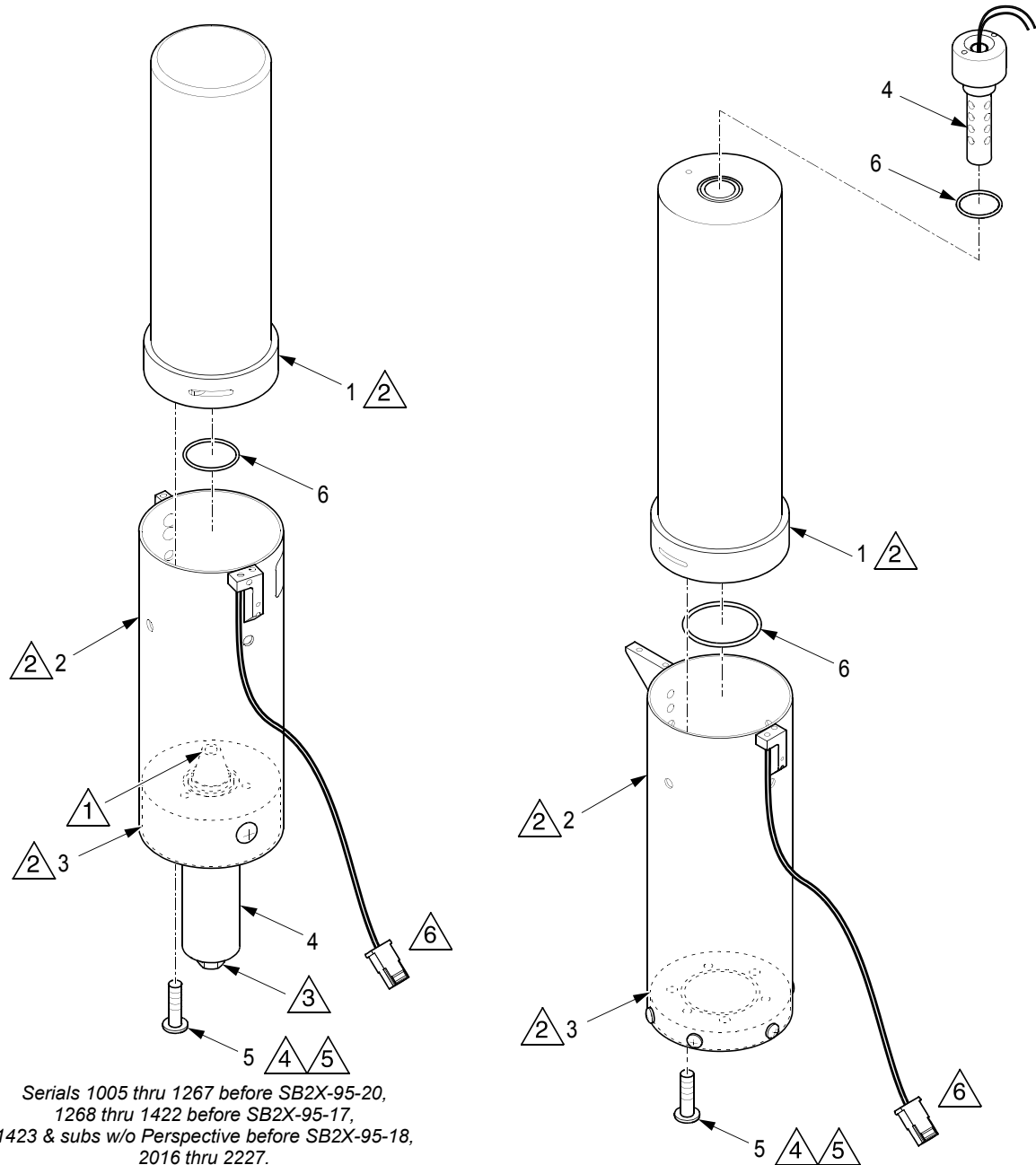
Figure 95-01-0112

Rocket Assembly Wiring - Serials 1005 & subs w/o Perspective after SB2X-95-17, SB2X-95-20, or SB2X-95-18, 2228 & subs (4 of 4)

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EFFECTIVITY:
Serials 1005 thru 1267 after SB2X-95-20, 1268 thru
2227 after SB2X-95-17 or SB2X-95-18, 2228 & subs



NOTE

- 1 Verify foil seal on rocket igniter is intact.
- 2 Verify surfaces of launch tube, rocket base, and rocket motor are clean and free of any debris.
- 3 Verify safety wire is installed through firing pin actuator on bottom of rocket igniter.
- 4 Apply plastic fastener threadlocker to nylon screws.
- 5 Install nylon screws securing rocket base to rocket motor. Torque to 3.0 ±0.5 in-lb (33.9 ±5.6 Ncm).
- 6 *Serials 1005 & subs w/o Aircraft Data Logger:* If plug P1046 is installed to anchor block on launch tube, remove wire harness assembly from launch tube.

LEGEND

1. Rocket Motor
2. Launch Tube
3. Rocket Base
4. Rocket Igniter
5. Nylon Shear Screws
6. O-Ring

SR20_CM95_2962C

Figure 95-01-0113
Rocket Assembly

EFFECTIVITY:
All

D. Parachute Assembly

- (1) Removal - Parachute Assembly
 - (a) Remove handle access cover and install safety pin.
 - (b) Remove rocket assembly. (Refer to 95-01-01)
 - (c) *Serials 1423 & 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.
 - (d) *Serials 1005 thru 1422:* Remove Empennage Cover. (Refer to 95-01-01)
 - (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 parachute compartment.
 - (h) Remove spacers, bolts, washers, and nuts securing forward harness straps to parachute assembly three-point shackles.

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.

Do not drag parachute assembly over any surface. Following removal of parachute assembly from airplane, set assembly on stable, non-abrasive surface with line cutters facing up.

- (i) *Serials 1005 thru 1422:* Lift parachute assembly through top of parachute compartment and place onto stable, non-abrasive surface, laying assembly with three point shackles facing up, and top of pack facing aft.
- (j) *Serials 1423 & 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.

Note: It is permissible to reuse the existing Line Cutters if they have not reached their Life Limit. (Refer to AMM 4-00)

- (l) Remove line cutters. (Refer to 95-01-01)
- (m) Tie off three-link release assembly to maintain correct stackup.
- (n) Identify removed parachute assembly as follows:
 "Pending Cirrus Design Disposition: Removed from SR20 - ASN#### Date: mm/dd/yyyy"
 where "####" specifies aircraft serial number, and "mm/dd/yyyy" specifies date of parachute assembly removal.

WARNING: Ensure removed parachute assembly is properly identified to prevent any attempt to re-use assembly pending disposition by Cirrus Design.

The kevlar harness has poor resistance to ultraviolet light and should be protected from light immediately.

- (o) Store parachute assembly in clean, dark, and dry environment pending disposition by Cirrus Design.

(2) Installation - Parachute Assembly

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

Description	P/N or Spec.	Supplier	Purpose
Parachute Assembly	Reference Parts List	Cirrus Design	N/A

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 safety pin is installed.
- (c) Ensure line cutters are installed. (Refer to 95-01-01)
- (d) Record serial numbers and expiration dates from top flap of parachute in airplane log book.
- (e) *Serials 1005 thru 1422:* Near empennage cover opening, lay parachute assembly on stable, non-abrasive surface, laying assembly with three point shackles facing up, and top of pack facing aft.
- (f) *Serials 1423 & subs:* At 222 bulkhead, lay parachute assembly on fuselage floor with three point shackles facing up, and top of pack facing aft.
- (g) Unfasten hook and loop securing retaining straps around buckles and route straps forward towards parachute compartment.
- (h) 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.

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

- (i) *Serials 1005 thru 1422:* 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-lb (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.

- (j) *Serials 1005 thru 1422:* Lower parachute assembly through empennage cover opening and into parachute compartment.
- (k) *Serials 1423 & subs:* Insert parachute assembly into parachute compartment.
 - 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.

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

- (l) *Serials 1423 & 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-lb (10.5 - 11.5 Nm).
- (m) Route parachute assembly retaining straps into upper slots of parachute compartment to facilitate installation.

CAUTION: Ensure retaining straps are not twisted during installation.

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

- (p) 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.

- (q) Position aft harness bracket to 222 bulkhead so 10° bend in top of bracket faces away from bulkhead and install bolts, washers, and nuts.
- (r) *Serials 1005 thru 1422:* Torque bolts to 330 - 370 in-lb (37.3 - 41.8 Nm).
- (s) *Serials 1423 & subs:* Torque bolts to 770 - 950 in-lb (84.7 - 104.5 Nm).
- (t) *Serials 1005 thru 1422:* Install Empennage Cover. ([Refer to 95-01-01](#))
- (u) Perform Inspection/Check - Activation Handle and Cable Assembly. ([Refer to 95-01-01](#))
- (v) *Serials 1423 & 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.
- (w) Install rocket assembly. ([Refer to 95-01-01](#))

E. Activation Handle and Cable Assembly (See Figure 95-01-0114), (See Figure 95-01-0115)

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

Description	P/N or Spec.	Supplier	Purpose
Telescoping Magnet	-	Any Source	Retrieval.
Small Knife	-	Any Source	Facilitate removal of attach screws.

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

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

- (c) Remove BH 222 trim panel and carpet. (Refer to AMM 25-10)
- (d) *Serials 1005 thru 1267 after SB2X-95-20:* Disconnect battery 1 from both positive and negative terminals. (Refer to AMM 24-30)
- (e) Remove access panels CB6 and CB7 from BH 222. (Refer to AMM 06-00)
- (f) To prevent debris and components from falling into bottom of empennage, place catch cloth below rocket and parachute assembly.
- (g) Remove LH rear headliner. (Refer to AMM 25-10)
- (h) If applicable, remove fasteners securing cabin headliner to fuselage.
- (i) Remove LH and RH cabin flood light assemblies. (Refer to AMM 33-10)
- (j) Pull LH door seal away from top edge of door frames. (Refer to AMM 53-40)
- (k) If applicable, slit tape securing LH headliner to door frame.
- (l) Remove LH B-pillar trim. (Refer to AMM 25-10)
- (m) Gently pull LH portion of cabin headliner down from ceiling to gain access to activation cable.
- (n) Remove rocket assembly. (Refer to 95-01-01)
- (o) Remove grommet securing activation cable to cable pass-through hole in parachute compartment.

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

- (p) At activation handle, remove nuts, washers, bushings, and screws securing activation handle and cable assembly to fuselage.
- (q) Locate, cut, and remove all cable ties securing activation cable to the fuselage ceiling.
- (r) Remove aluminum tape securing activation cable to fuselage ceiling.
- (s) Remove activation cable from airplane.
- (2) Installation - Activation Handle and Cable Assembly
- (a) Acquire necessary tools, equipment, and supplies.

Description	P/N or Spec.	Supplier	Purpose
Activation Handle and Cable Assembly	Reference Parts List	Cirrus Design	CAPS Activation.

Description	P/N or Spec.	Supplier	Purpose
Airtech Teflon Tape, 1-inch	Teflease MG2A	Airtech International Huntington Beach, CA 92647 714-899-8100	Sealing.

- (b) Ensure 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 in-lb (1.7 - 2.2 Nm).
- (d) Fill, prime and paint screw holes.
- (e) Install grommet to cable pass-through hole in parachute compartment.

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 parachute compartment.
- (g) Loosely attach activation cable to forward and middle cable tie anchors with cable ties.
- (h) *Serials 1005 thru 1267 before SB2X-95-20, 1268 thru 1422 before SB2X-95-17:* 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 cable 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 Test - Activation Handle and Cable Assembly. ([Refer to 95-01-01](#))
- (o) Install rocket assembly. ([Refer to 95-01-01](#))
- (p) Position cabin headliner to ceiling and install activation handle recess trim.
- (q) Install LH B-pillar trim. (Refer to AMM 25-10)
- (r) Install tape securing headliner to door frame.
- (s) Install LH and RH door seal to top edge of door frames. (Refer to AMM 53-40)
- (t) Install LH and RH cabin flood light assemblies. (Refer to AMM 33-10)
- (u) Install LH rear headliner. (Refer to AMM 25-10)
- (v) Remove catch cloth from below rocket and parachute assembly.
- (w) Install access panels CB6 and CB7 from BH 222. (Refer to AMM 06-00)
- (x) *Serials 1005 thru 1267 after SB2X-95-20:* Connect battery 1 at both positive and negative terminals. (Refer to AMM 24-30)
- (y) Install BH 222 trim panel and carpet. (Refer to AMM 25-10)

(3) Inspection/Check - Activation Handle and Cable Assembly

WARNING: Activation cable must not be connected to firing pin actuator during this procedure.

Note: Two technicians are required to manipulate activation cable at both ends.

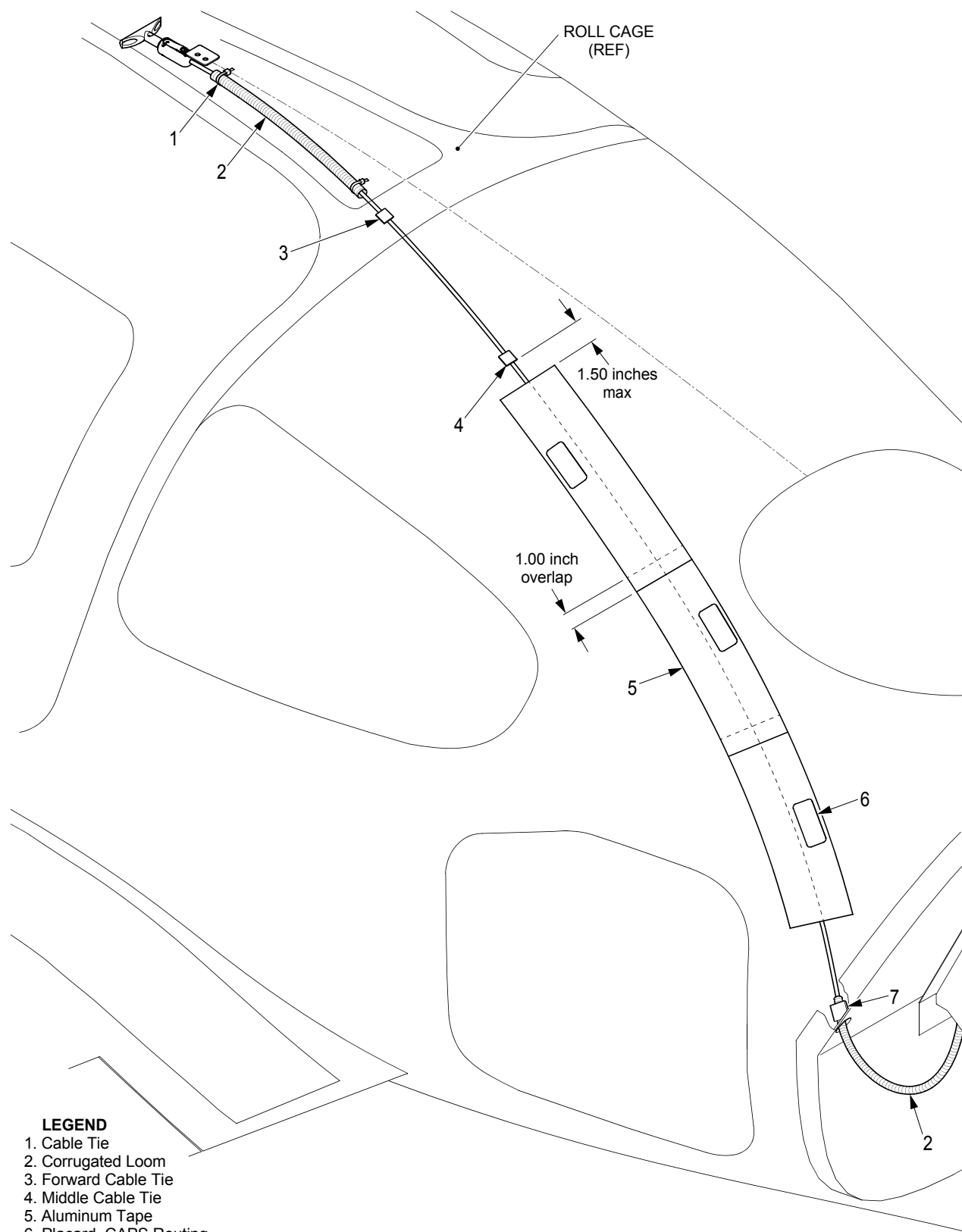
- (a) Verify activation cable is not secured to firing pin actuator.
 - (b) Between activation handle and end of activation cable at bulkhead 222, retract activation cable back and forth several times to verify that no discernible tension exists between activation cable and cable housing.
 - (c) If activation cable tension is observed, contact Cirrus Design for disposition.
- (4) Operational Test - Activation Handle and Cable Assembly

CAUTION: The 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.

Description	P/N or Spec.	Supplier	Purpose
Activation Cable Test Fixture	T10183	Cirrus Design	Testing.

- (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 1005 thru 1422:* Remove knurled nuts securing adapter plate to test fixture.
- (e) *Serials 1005 thru 1422:* Position test fixture to inboard rocket assembly mounting holes on BH 222 and secure with knurled nuts.
- (f) *Serials 1423 & 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 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 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 activation cable.
- (q) If power unit reads red a second time, contact Cirrus Design for disposition. Otherwise, remove test fixture from airplane.
- (r) *Serials 1005 thru 1422:* Position adapter plate to test fixture and secure with knurled nuts.
- (s) Install safety pin.



SR20_CM95_1539

Figure 95-01-0114
Activation System

95-01-01

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EFFECTIVITY:
All

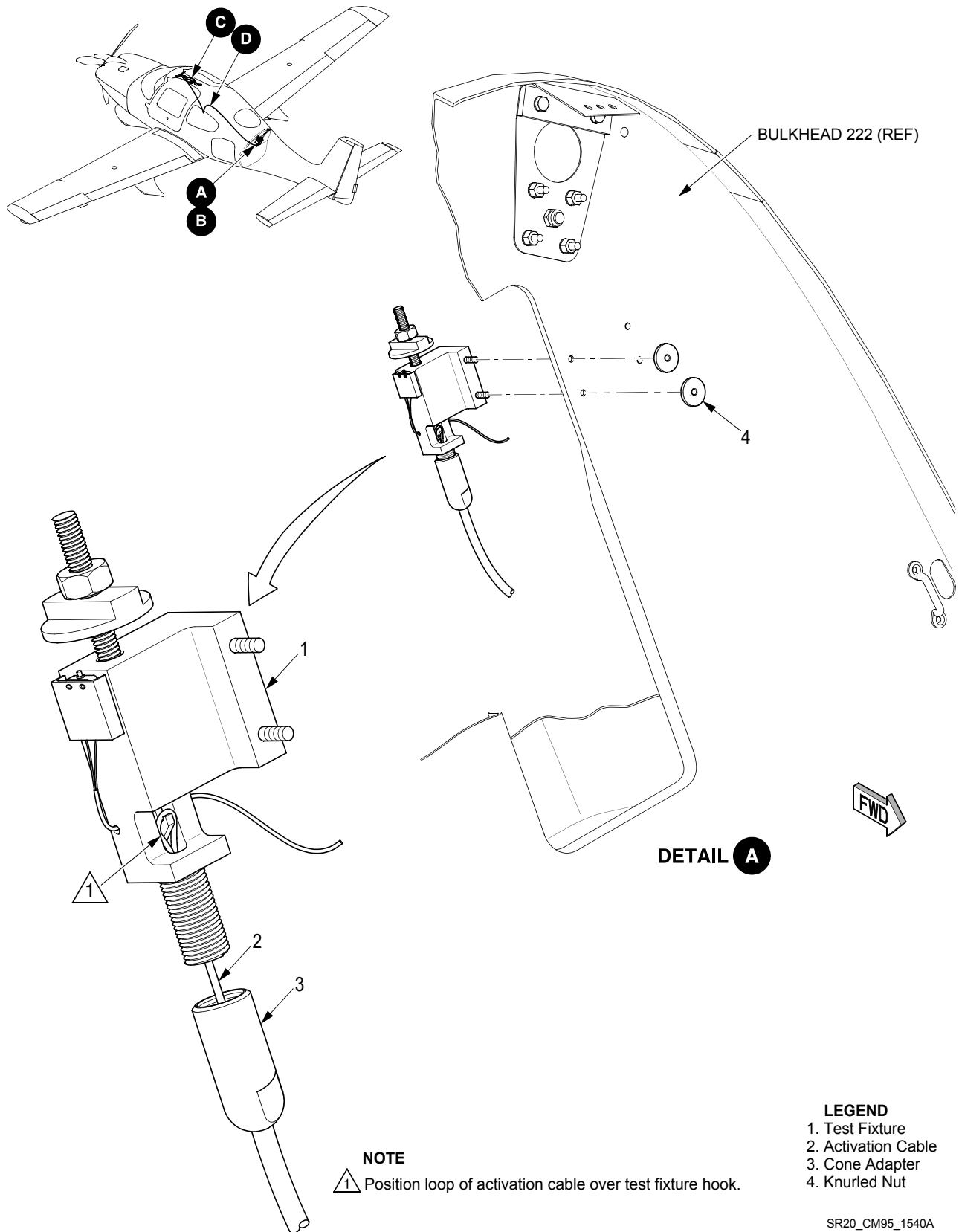


Figure 95-01-0115
Test Fixture - Serials 1005 thru 1422 (1 of 3)

EFFECTIVITY:
 Serials 1005 thru 1422

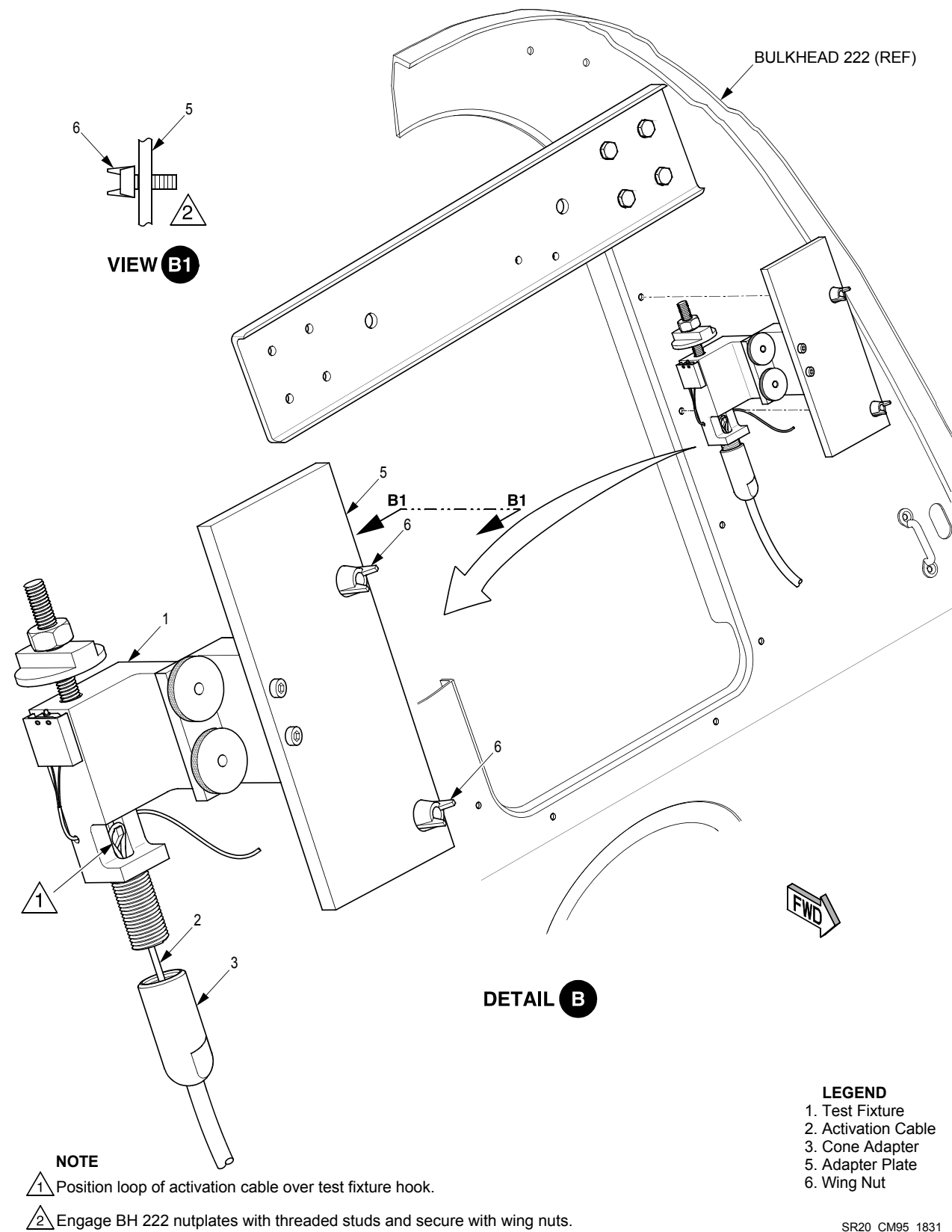
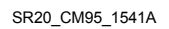


Figure 95-01-0115
Test Fixture - Serials 1423 & subs (2 of 3)



EFFECTIVITY:
Serials 1005 & subs

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