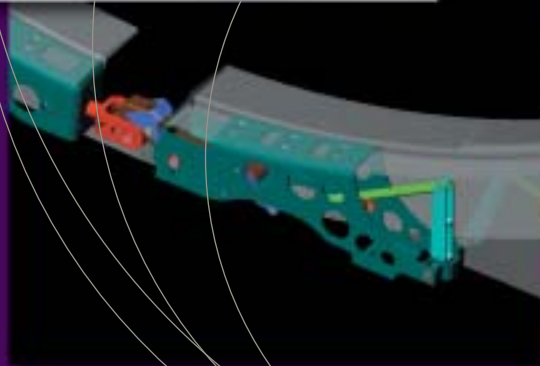



# Latching Systems and Related Mechanisms

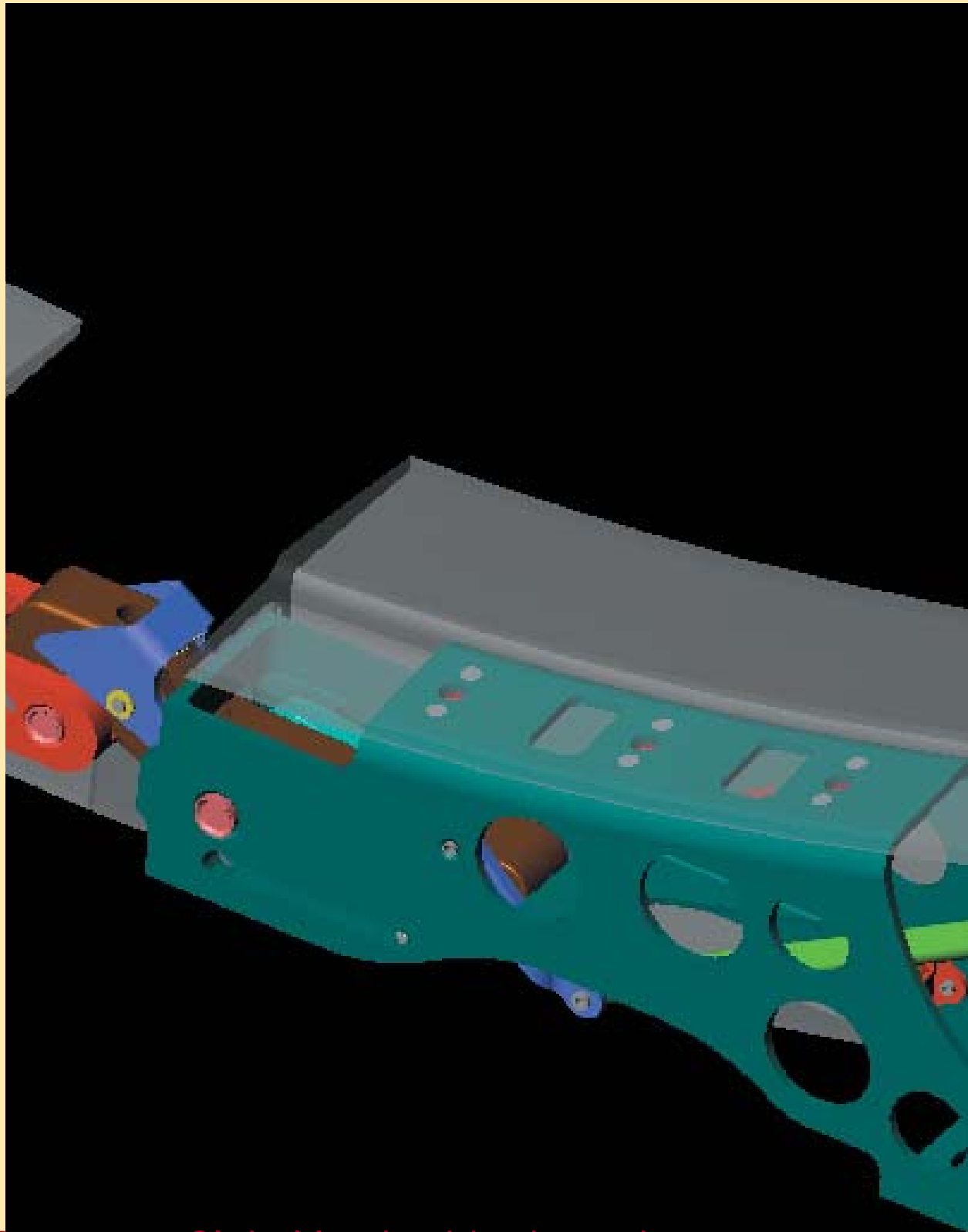


PRODUCT <b>LATCHING SYSTEMS</b>	PRODUCT# <b>FASTENING SYSTEMS</b>	EDITION <b>2001</b>	LOCATION <b><a href="http://www.fairchildfasteners.com">www.fairchildfasteners.com</a></b>
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COMMENTS

Fairchild Fasteners offers a broad selection of Latching Systems and Related Mechanisms





Fairchild Fasteners. Global leadership through excellence and innovation.



For more than 50 years, Fairchild Fasteners® has set industry standards in the design and manufacture of precision fasteners, fastening systems and support tooling. Offering a broad selection of latching systems and related mechanisms, Fairchild Fasteners serves the needs of aerospace, industrial, and automotive markets with proven excellence and innovation.

Today, Fairchild Fasteners meets the challenges of an expanded arena. Our totally integrated company provides global industry support through worldwide sales and services.

The Fairchild philosophy helps explain our ongoing leadership. We are committed to constant improvement of every product, system and service. To maintain our cutting edge engineering and manufacturing expertise, we select teams of highly skilled personnel who use the latest computer applications to provide total, custom solutions. Our commitment is broad yet highly specific, with experienced specialists assigned to each product line.

Our success in achieving and maintaining quality is well documented. Fairchild Fasteners has distinguished itself by achieving ISO 9001/AS9000 Registration, FAA Certifications and NADCAP Third Party Accreditation, in addition to an extensive set of customer approvals. Since 1991, Fairchild Fasteners has been dedicated to Continuous Improvement programs. At each facility, Lean Manufacturing and Service Workshops have become a way of life.

For high technology fastener solutions, look to Fairchild Fasteners. Our dedication to excellence is the template for success.

**Structural Latching Systems** are custom designed to meet the most demanding static and fatigue environments in the aerospace industry. Fairchild Fasteners has over 30 years of experience in the design and development of latching systems. Dedicated Engineers are continually developing new latching concepts designed to meet unique customer requirements. Fairchild Fasteners utilizes rapid-prototyping technology that can expedite the development cycle through the reduction of lead times normally associated with standard methods of manufacture, such as forgings or investment castings.

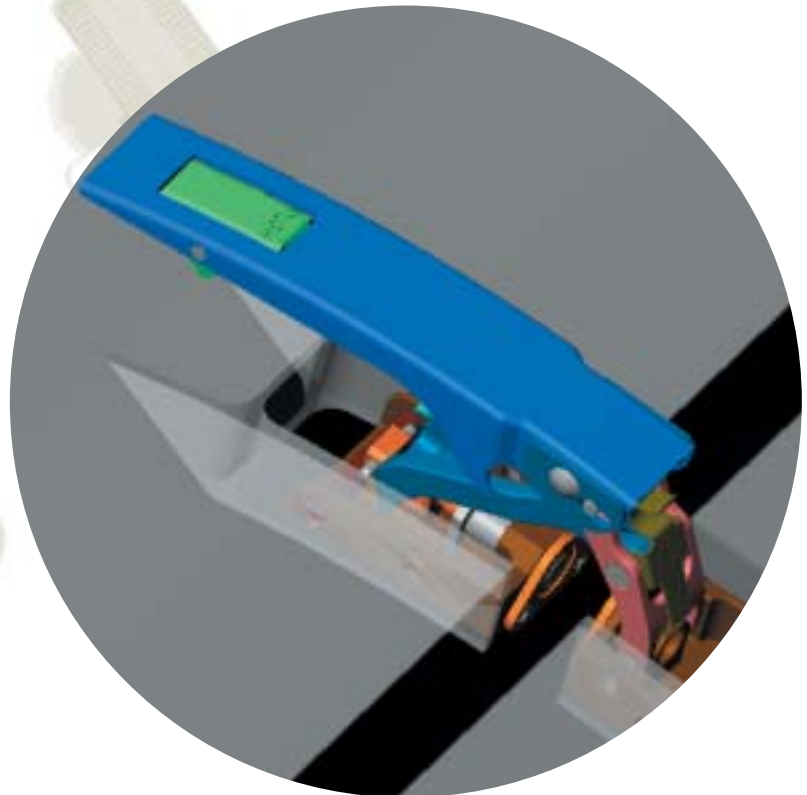
**Hook latches and keeper assemblies** offer high reliability and quick access when mounted onto engine fan cowls or thrust reverser structures. Our low profile latches can be used in restricted or reduced envelope environments and offer ease of closure against pre-load conditions of up to 1,500 lbs. Hook latch static load capabilities range from 500 to 30,000 lbs.

**Adjustable hook latches** are used in restricted envelopes where an adjustable keeper can not be installed. The adjustment property of the latch offers quick rigging of the latch while engaged on the structure. This translates into significant savings through a reduction in valuable maintenance time. Adjustable hook latches are available in a variety of materials and finishes, and can operate at temperatures of up to 600°F.

**Rotary latches** are available in rotary cam or hook actuated versions, and can be operated using standard tools. The corresponding keeper assemblies are adjustable to provide ease of installation, rigging and maintenance. These latches provide exceptional take-up capability and can be used in multiple load applications. Rotary latches are constructed of Aluminum and Corrosion Resistant Steel for maximum strength and durability.



Typical structural latch **applications** include fixed and rotary wing commercial and military aircraft, engine fan cowls, and thrust reversers. Rotary latches are used in multiple load applications found on radome and tailcone structures.



**Access Door Mechanisms** provide ease of entry into frequently accessed panels, doors and hatches. Pressure relief door latches provide controlled, pressurization sensitive release loads for pressure relief cowl and thrust reverser doors. Release loads of 30 to 250 lbs. can be achieved with these door latches. They can operate at temperatures ranging from -60°F to +900°F, and are available in heat-resistant Inconel® 718 Nickel-Chromium Alloy, A286, and 17-4PH Corrosion Resistant Steels for temperatures of up to +250°F.



**Push-button latches** are available in both one and two push-button designs. The simplified “button” release offers ease of manual operation, facilitating activation when maintenance is performed while hands are not free or when wearing heavy gloves.

range in load capacity from 100 to 2,250 lbs. These latches are available in Carbon and Corrosion Resistant Steels.

acting hinges provide additional clearance for restricted areas, where full exposure of the door cavity, is required. Hinges are available in both Aluminum and Corrosion Resistant Steel.

**Clamps** are used for the installation and maintenance of wire bundles, hoses, tubing, cable and conduits. They offer speed of operation through the use of Fairchild Fasteners 1/4-Turn fasteners. Hand or tool operated clamps are available, with an option of either metallic or non-metallic liners. These clamps are made from stainless steel and can withstand temperatures of up to 750°F.

**Hinges** are used on a variety of door and panel applications. Gooseneck hinges are used for pressure relief doors and for smaller applications such as fuel access doors. Double

Access door mechanisms are used universally on most commercial aerospace and automotive **applications**.

**Pawl latches** are designed to secure hinged panels. The pawl engages the frame structure through the axial rotation of an actuator that turns a wire-form or solid arm pawl. They are easy to install and offer a reliable, low cost method of supplying a door latch for use on hinged panels or small doors.

**Tension latches** are used to secure light, medium and heavy duty hinged doors, panels and structures. They incorporate an over-center lock mechanism to provide a positive lock and resistance to opening under adverse operating conditions. Tension latches are available in a variety of sizes and



**Electronics Latching Mechanisms** consist of a broad range of products serving the needs of the electronics industry. **Chassis latches** are offered in a wide variety of styles, strengths and finishes. Versions of the chassis latches are qualified to NAS1637 requirements. Many chassis latches are used for removable electronic drawers and provide sufficient mechanical advantage, enabling them to seat multiple pin connectors or RFI gaskets. The mating fork assemblies offer ease of adjustment through the use of threaded elements or by the use of shims. Self-adjusting versions are also available.

**Hold-down devices** are used to secure avionics boxes and modules in a variety of aerospace applications. Hand and tool operated designs are available. Versions of the hold-downs are made to resist 30g shock loads and can withstand up to 5,000 lbs. of tension load. Load limiting versions are available, and can be used as a module insertion and extraction device to avoid damage to multi-pin connectors. Variations of the hold-downs are compliant with ARINC600 and MIL-F-85731 applications.

**Self-Compensating Injector/Ejector Levers** provide consistent self-compensation for circuit board tolerances. With only a few pounds of finger pressure, the levers can exert up to 80 lbs. of force, enabling the seating of multiple pin or fiber optic connections. The pawl of the injector/ejector is used as leverage to press against the circuit board card frame, at which time the uniform, controlled force is applied to the circuit board to seat the connectors. The lever can then be stowed onto the circuit card frame. The lever can be used to extract the circuit board after installed, through the actuation of a catch release. Injector/ejectors are made from high-strength Aluminum and a variety of Steels.



The **Wedg-Tite®** are used as circuit card retainers. By turning the adjusting screw on the Wedg-Tite®, the actuation screw separates the wedge segments applying an outward pressure to the circuit card frame, thus generating clamping forces to retain the circuit card. The contact properties of the wedges, in the circuit card frame, can serve as a thermal path to dissipate heat away from the circuit card and frame, in air-cooled applications. The Wedg-Tite® is available in load-limiting versions, which offer clamping forces of 90 to 300 lbs. It is manufactured from high strength Aluminum and Corrosion Resistant Steel.

**Tools** are available for injector/ejector pivot pin installation and removal, from Fairchild Fasteners Assembly Tool Systems.

Typical **applications** for electronic hold-down devices, chassis latches and keepers include commercial and military line-replaceable avionics units. Wedg-Tite® circuit board retainers and injector-ejector levers are used to secure advanced avionics systems on commercial and military aircraft.



**Latch Handle Systems** are comprised of various mechanisms providing a means of activating unique remote latch and pin operating systems. Flush handle assemblies are used for cargo door access. The pop-up handle is easy to operate and offers ease of actuation and stowage. The actuators of the flush handle latches can be used or adapted to drive multiple pin linkages designed to stow the door assembly. Flush handle latches are constructed of high strength Aluminum and Corrosion Resistant Steels for durability and reliability.



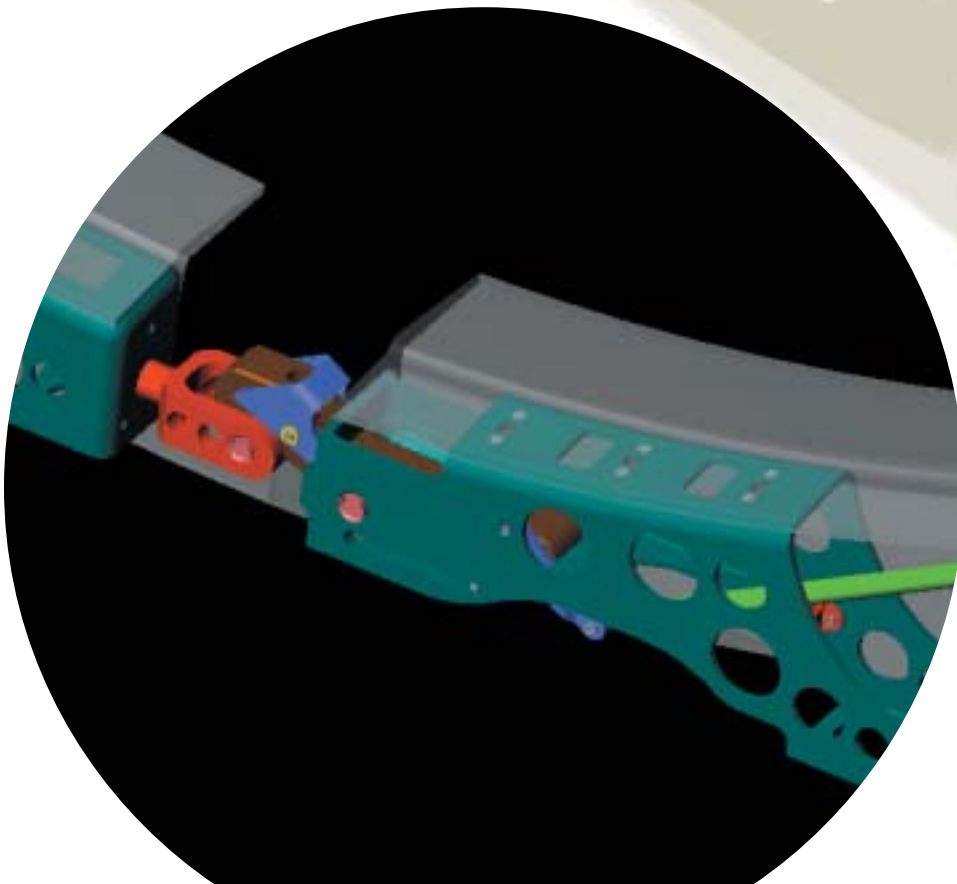
Fairchild Fasteners has designed a unique array of **remotely operated latching systems** used on fan cowl and thrust reverser systems. Versions of the remotely operated latches offer pin detection and other fail-safe properties to insure resistance against latch and structure damage in applications where the structural interface between the latch and the mating structure can not be visually detected. Remotely operated latching systems offer features that permit the adjust-

ment of the latch away from the structural interface point of the latch and the mating structure, thus facilitating installation, rigging and maintenance of the latching system. Load capacities for the remotely operated latches range from 17,000 to 22,000 lbs.

**Multiple pin latch assemblies** are used to stow removable or hinged door panels. The low profile design

of the multiple pin latch allows for installation into panels of less than 1 inch in thickness. These pin latches are available in upper and lower handle versions, to allow for actuation of the latch and removal of the panel from above or below the panel as required. The load capacity of the shear pins, in the multiple pin latch assembly, range from 250 to 1,000 lbs. in double shear. Multiple pin latches are constructed of high strength Aluminum Alloy castings and high strength Corrosion Resistant Steel.

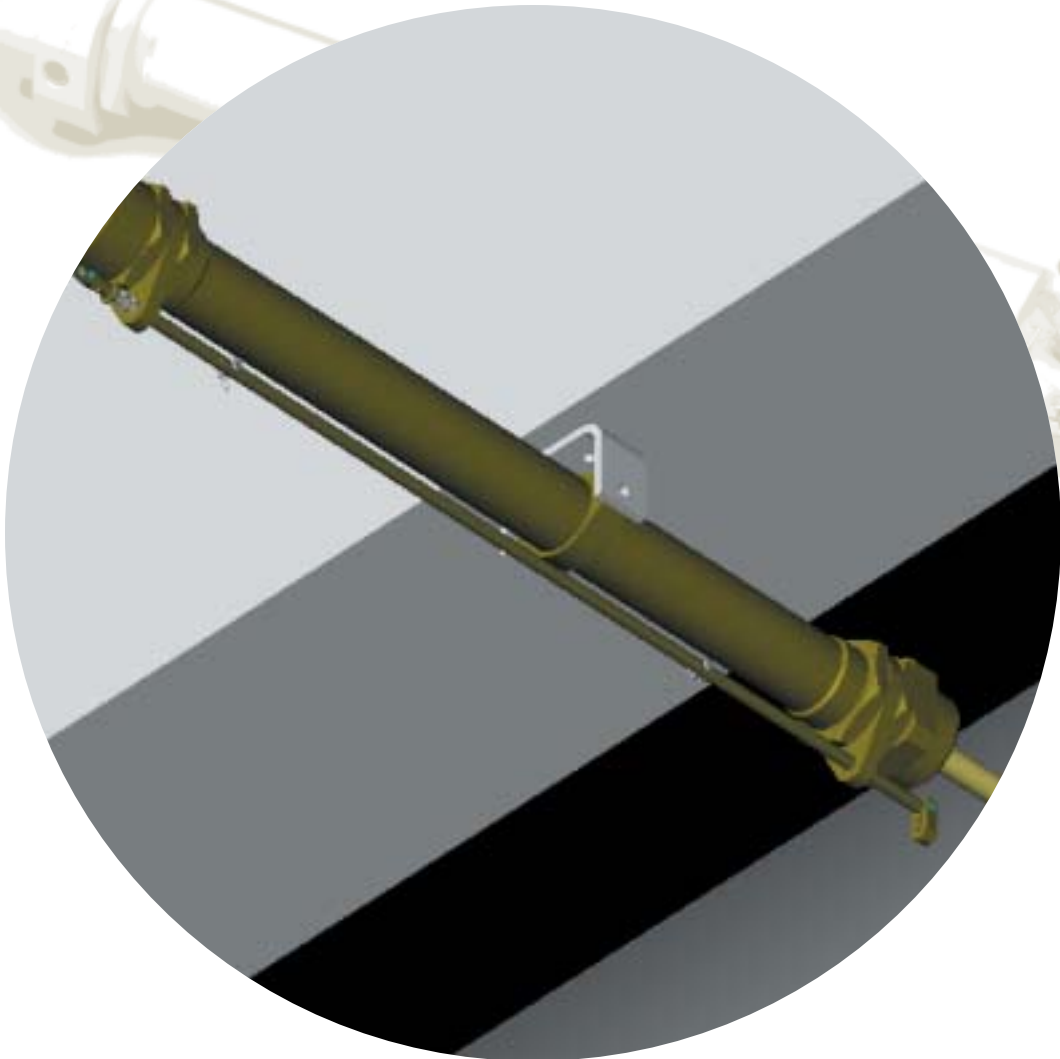
Typical latch handle system **applications** include fixed and rotary wing commercial and military aircraft, cargo doors, removable and hinged door panels, fan cowl and thrust reverser systems.



**Hydraulic Snubber** assemblies are used as dampening devices for radome and tailcone applications. The hydraulic fluid-filled cylinder provides for dual speed operation in the opening and closing direction. Snubber assemblies are constructed of high strength Aluminum and Corrosion Resistant Steels. The speed for the snubber assemblies varies from 8 to 10 seconds for tailcone and radome applications, and from 2 to 3 seconds for APU or other small door applications. The tailcone snubbers are equipped with a remote lock release mechanism to facilitate closure.



Typical hydraulic snubber **applications** include fixed wing commercial and military aircraft, radome and tailcone.

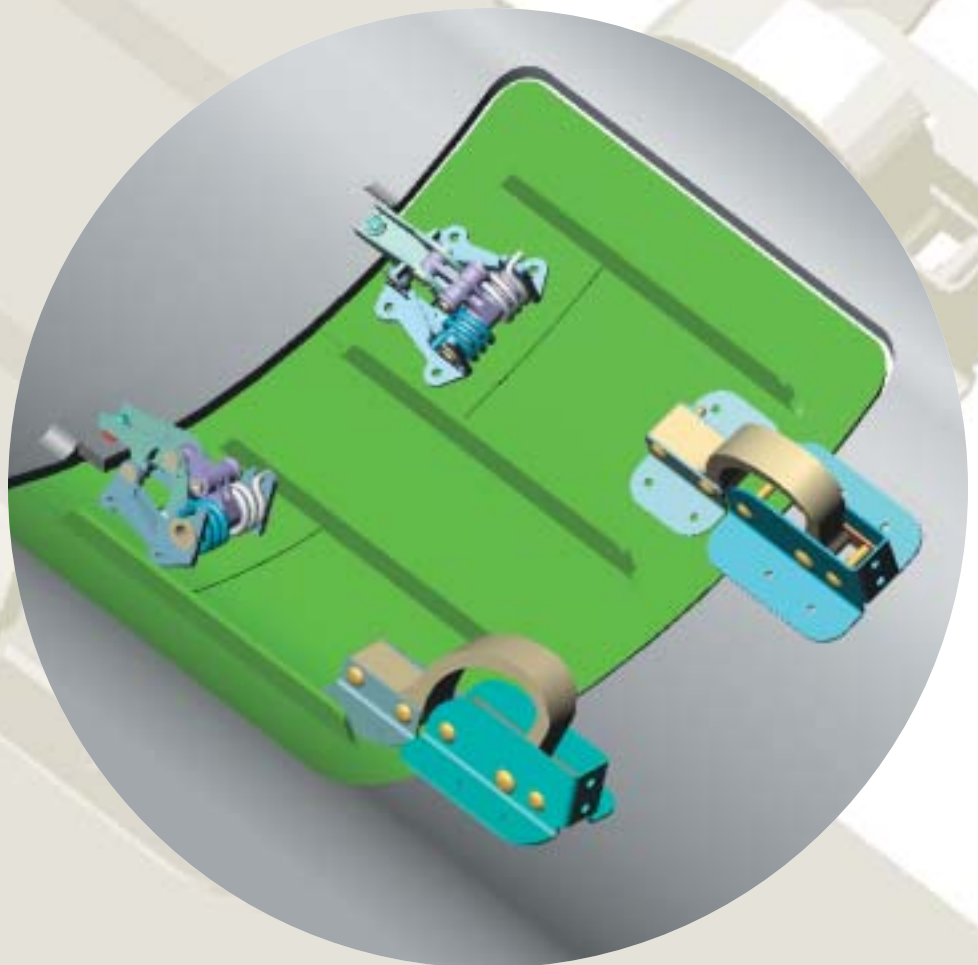


**Structural Assembly Integration** is a natural extension of Fairchild Fasteners' broad product offering. By making use of our diverse latch and fastener product lines, we are now offering next level assemblies incorporating our proven aerospace mechanisms and fastener designs.

We can provide customers with fully assembled pressure relief door assemblies incorporating various fasteners manufactured by Fairchild Fasteners. By supplying a completely assembled door, we save our customers time and money, allowing them to reduce on-site inventories and manufacturing lead-times normally associated with the procurement of small lots of specific, individual items. In one case, a customer who was purchasing

68 components, from 6 different suppliers, is now purchasing 1 pressure relief door, from one supplier at a lower cost.

Let Fairchild Fasteners integrate your assemblies as a cost-effective means of completing your end-item assembly at our facility, utilizing the full scope of mechanism and fastener manufacturing diversity and our complex assembly capability.



The premier manufacturer of **Latching Systems and Related Mechanisms**, Fairchild Fasteners brings the in-depth experience of 30 years of working with aerospace and industrial customers. With extensive resources at the disposal of engineers, this product line boasts some of the most creative designers in any industry. Working with clients, these designers and engineers are just as concerned with providing solutions not offered in its stock as with matching customer needs with items that are.

Specializing in **custom latching devices** designed to optimize performance for specific applications, a complete, integrated design and product package is delivered. **Latch** experts develop concept sketches and detailed engineering studies to present solutions to even the most critical and complex design problems. Developmental hardware and prototypes follow, and finally **Fairchild Fasteners'** manufacturing facilities in Torrance, California and Kelkheim, Germany deliver the completed precision structural mechanisms, on time and within budget. Envelope restrictions, rapid accessibility requirements, and extreme environments have all been conquered by these **special latch designs** and our engineers welcome the opportunity to meet a unique set of challenges.



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