THE HARTWELL CORPORATION...

we are the new Latch Company and have been for over 50 years. Founded in 1939, we are the major developer and manufacturer of Fastening and Latching Solutions for Quick-Accessibility to the Military, Commercial and General Aviation Industries.

To guarantee our continued position as the supplier of choice, Hartwell emphasizes both TQM (Total Quality Management) programs coupled with SPC (Statistical Process Control) throughout engineering, manufacturing and quality assurance.

Your copy of Quick-Accessibility solutions from the Hartwell Corporation, highlights some of our basic capabilities. Because we are tooled for well over 20,000 different configurations, and we add more each week, your brochure should be considered the "starting point" in finding your Latching and Fastening solution.

Selection Guide

As you review the product groups, the following questions should be kept in mind. Not all questions relate to each product, however they are the most common questions that need to be addressed at the beginning of your selection process.

- Envelope limitations, installation and operation?
- Position and attitude of Latch on the Aircraft? (direction of airflow in flight)
- Loads; Shear?
  Tension?
  Compression?
  Fatigue?
  Pre Load?
- Life Cycle Requirements?
- Environment; Temperature operating range?
  Shock?
  Humidity?
  Dust?
  Vibration?
  Pressure?
- Human Factors; Remote operation?
  Hand or tool operated?
- Safety features; Built in flagging?
  Key lockable?
- Material?
- Contour requirements?
- Structure the Latch will mount in?
- Weight limitations?
- Adjustment?
- Take up requirements?
- Special finish?
- Unit potential?
- Cost limitations?

After your initial selection, contact Hartwell giving as much detail as possible about your application requirements. Postage paid reply cards are provided at the back of the brochure or you can phone (714/993-4200) or FAX (714/777-4031) the information to us.

Your local Hartwell Sales Engineer will then contact you for an appointment and provide technical assistance.
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COVER PHOTOS:
Left to right, F16, Beech Starship, B1B, V22, Gulfstream IV, MDII, Canadair RJ Commuter, 747-400, and A320
Hartwell coined the term "Hook Latch" in the early 50's. We have continued to develop thousands of variations of the Basic Latch for demanding modern aircraft requirements. The XLP (Extra Low Profile) Series Hook Latch, allows a reduction in frontal drag area for each Nacelle allowing closer coupling of Nacelle to the engine. XLP Latch penetration can be under 1" in depth.

Some features may vary from one series to the next depending on their application requirements:
- Free Travel Handle.
- Hand Operated.
- Tool Operated.
- Remote Operated.
- Over Center Locking.
- Trigger Safety Lock.
- Take-up.
- Ultimate Hook Latch loads from 100 lbs.
- Dual Coil Safety Springs.
- Preload with Adjustable Hook.
- Low Depth Penetration (XLP Series).
- Built-in Safety Feature to ensure hook engagement.

The Adjusta-Keeper® was first introduced to the Aerospace Industry by Hartwell as a major time saver for rigging Nacelles. They ensure proper preloading at each Latch point without opening and closing the Cowl and require no special tools to operate. Three series are available: Front, Rear, and Side Mounting.

Adjusta-Keeper® Feature:
- Mold Line adjustment with Latch in toggle, under load to ensure proper preload.
- Standard Hex wrench is the only tool needed for preload adjustment.

10/15° Free travel handle slot
Dual coil safety spring
Flush Handle
Latch mounting
Trigger

XLP (EXTRA LOW PROFILE) HOOK LATCH

Antiorotation
Adjustment slot
Mounting holes
Clevis

FRONT MOUNTED ADJUSTA-KEEPER®
Retractable Pin Latches from Hartwell are available in numerous styles and series. Tool operated models are also standard and require no special tools to operate. Both hand and tool operated Pin Latches require minimum skin cutouts and are contoured to the aircraft configuration.

Some applications use Pin Latches in a dual role as both a Latch and Quick Release Hinge Pin.

**Handle operated models feature:**
- Over center locking.
- Free travel handles.
- Trigger safety locks.
- Ultimate shear loads from 1,000 lbs. hand and tool operated models.

Hartwell made the Rotary Latch a practical concept in the mid ’50s for the B-58 Hustler. Over the years, numerous advances have been made in materials, engineering and manufacturing processes. These advances accommodate higher loads for Rotary Latches in reduced envelopes of today’s modern military and commercial aircraft.

**Rotary Latch Features include:**
- Minimum skin cutouts.
- High strength to weight ratios.
- Mechanical Lock incorporated in the Latch.
- Reduced envelopes.
- Conventional operating tools.
- Take-up from 1/4”.
- Latches incorporate a visual indication showing if the Latch is open or closed.
- Ultimate loads from 1,500 lbs.
Strap Latches have a dual purpose in Commercial Aircraft engines with high thrust ratings. These Latches are located in the Thrust Reverser section of the cowl and apply tension through the strap keeping the Vee Band from migrating out of its groove. Their secondary purpose is to act as back-up for the split line hook latch and supplement tension loading.

Hartwell's broad base of Strap Latch Technology accommodates numerous Thrust Reverser radii and tension loads. Latch operation is by handle or standard tool, depending on latch requirements.

Some features may vary depending on application requirements.

- Over center locking
- Dual coil safety springs
- Latch keepers included
- Adjustable preload
- Trigger safety lock
- Cowl cannot be closed if Latch is not fully engaged

Flush mounted aircraft handles for exterior applications, feature Quick-Accessiblity with Hartwell's pull-out, pop-out and tilt-out series of handles. Flush mounted to the contour of the aircraft, pressure sealed and designed to withstand severe torquing on both one- and two-hand operating models.

Pop-out, pull-out and tilt-out models have optional interior handles available. With this option installed, the interior handle can be operable when the exterior handle is closed and in stowed position.

Specialized interior and exterior handle systems for passenger emergency exits and crew escape panels are also available.

Features may vary from one series to the next depending on handle application.

- Trigger releases handle to operational position
- Key lockable
- Special finishes
- Pressure seal
- Handle and housing are contoured to the aircraft door configuration.

Tool Operated Strap Latch

Optional interior handle

Pressure sealed (on request)

Flush handle housing

Actuator pin

Collar

Exterior handle (released position)

Trigger release

Spring loaded

Rod end
Hartwell’s Tension/Shear Latches have been known for many years as “King” Latches. These Latches have proven international acceptance as reliable functional fasteners. Designed for Tension and Shear Load combinations encountered in stressed panels, where loads are carried through the door or panel.

Hartwell Tension/Shear Latches Feature:
- The lowest depth penetration and weight of any Tension Latch.
- Trigger safety lock.
- Two-piece handle for easy opening, and as a flag for partially closed latches.
- Tension adjustment at mold line with handle open.
- Attachment fitting provided.
- Shear loads supported along door abutment.
- Contoured to the aircraft configuration.
- Over center locking.

Hartwell Pressure Relief Latches share many of the same features for Quick Access as our Trigger Lock® and Missile Air® Latches. Their main application is in Pressure Relief Panels, to release at a pre-set load. These panels also serve as access panels for servicing the aircraft.

Pressure Relief Latches Feature:
- 100% factory tested.
- Pre-set load limits.
- Hand or tool operated.
- Minimum skin cutouts.
- Flush contour to aircraft configuration.
- Numerous fixed bolt offsets.
- Loads from 45 lbs.

CONCAVE CONTOUR TENSION/SHEAR LATCH

TOOL OPERATED PRESSURE RELIEF LATCH
Hartwell Trigger Lock® and Missile Air® Latches solve most application requirements for Quick-Accessibility in servicing aircraft through access panels. These flight proven Latches offer the widest range of product standards for: style, size, materials, loads, actuation and Bolt and Trigger Offsets.

Some features may vary from one series to the next depending on their application requirements.

- Actuation:
  - Single or dual button, lever handle or tool.
  - Sealed.
  - Fixed or adjustable bolt offsets.
  - Flush to contour.
  - Dual coil safety spring.
  - Built-in flagging when Latch is open.
  - Minimal skin cutout.
  - Ultimate loads from 60 lbs.

Aircraft Hinge solutions from Hartwell feature:
- Conventional and specialty Quick Release Hinges, Goose neck Hinges; spring loaded, open and closed.
- Detent or Trigger Lock Options.
- Single and Double Acting Flush Hinges; various offsets available for Flush installations.

FLUSH MOUNTED TRIGGER LOCK

- Dual coil spring
- Rugged lightweight stampings
- Bolt offset
- Rivet or spotweld to skin

GOOSENECK WITH TRIGGER

- Springs (spring loaded open)
- Pin
- Structure offset
- Mounting flange
- Mounting holes
- Rugged lightweight stamping
INTERIOR LATCHES

OVERHEAD STORAGE BIN LATCHES

Hartwell overhead self-closing Storage Bin Latches are engineered for airline durability, passenger safety, convenience, and appearance.

Basic models feature either single and dual point hook, dual pins or torque rods with latching end fittings. Opening the Latch is a simple push up or pull down operation.

SELF-CLOSING LATCHES

Hartwell Self-Closing Latches have proven their dependability in aircraft interior applications from flight deck, crew storage cabinets to catering carts. Using compression spring principles and with mounting and actuator variations, Hartwell Self-Closing Latches are the solution to most Self-Closing Latch applications. Basic models offer bolt offsets to accommodate door or frame requirements. Latch actuation, depending on style is by push, pull, twist, lever or paddle handle.

Some features may vary from one model to the next depending on their installation and requirements:

- Minimum door or panel cutouts.
- Various bolt offsets, materials and finishes.
- Ease of operation.
- Ease of installation.
- Blend with aircraft decor.
- Flush mounted.

FLUSH MOUNTED SELF CLOSING LATCH

STORAGE BIN LATCH WITH PULL UP ACTUATOR
STRUTS

STRUT-LOK™ FOLDING STRUTS
Hartwell's series of Strut-Lok™ Folding Struts automatically lock in the extended position when a panel is opened. Strut-Lok™ also eliminates the need for simultaneous release of the Strut on larger panels or doors; eliminating two-man panel closing operations.

STRUT-LOK™ STANDARD FEATURES AND OPTIONS
- Tube Diameters from .375”
- Extended lengths from 9”
- Standard tube material corrosion resistant steel.
- Optional tube material: aluminum and composites.
- Optional turnbuckle for strut length adjustment.

MIX OR MATCH END FITTINGS
- Adjustable rod end bearing.
- Formed tube end.
- Standard cut tube end.
- Machined fitting.

TYPICAL STRUT-LOK™ FOLDING STRUT

Strut-Lok™ Automatic self-locking
Adjustable rod end bearing
Return spring covered or exposed

STRUT-LOK™ FOLDING STRUT

FIXED LENGTH STRUTS
- Hold open rods with adjustable rod end, and Quick Release fitting

TELESCOPING STRUTS
- Conventional 2 and 3 segment Struts feature pull down sleeve actuator to release and close the strut.
- Non-Locking Strut dampeners are available to control the opening and closing rate of a panel or door.

Twist-Lok™ 2 and 3 segment struts.

Lever-Lok™ 3 segment struts.
- Both Twist-Lok™ and Lever-Lok™ Struts feature their own unique Hartwell Solutions for extra customer safety, and “Quick” operation. Materials include composite, corrosion resistant steel and aluminum. The Lever-Lok™ Strut shown is in Graphite Composite material.