

VOLUME 41  
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# THE M.C. GILL DOORWAY™

HIGH PERFORMANCE COMPOSITES PRODUCTS SINCE 1945  
[WWW.MCGILLCORP.COM](http://WWW.MCGILLCORP.COM)



The collage features a cartoon illustration of a man in a brown suit and glasses applying a patch to a wall. A speech bubble from him says "NOW THAT'S QUICK AND NEAT". Above him, a sign asks "WHAT'S IN?". Below the illustration, a sign reads "NEW GILLPATCH II". Overlaid on the right is a large, light-colored patch with the text "GILLPATCH® III SYSTEM" and a large blue "G" logo. Below the logo, it says "M.C. GILL CORPORATION" and "MEETS 25.855".

# Continuous Improvement





**Gillpatch™**  
**Systems**

**DESIGNED FOR QUICK AND EASY**

**Cargo**

**C**argo compartments can take a beating during loading and unloading, and during flight as cargo might shift. Often, these actions cause damage to the cargo liner, and if a liner is penetrated, it must be repaired before a flight may continue. Providing quick and easy systems for repairing damaged cargo liners, cargo compartment dividers, and bulkheads have been important M.C. Gill development programs from the time the first cargo liners were made in the 1950s.

# Liner REPAIR

Over the years, repair patches were developed to meet the emerging, more stringent requirements for improving resistance to fires which might occur in cargo compartments. M. C. Gill Corp. offers a family of convenient, easy-to-use patches for repairing the most common types of cargo liner damage – punctures and tears. Each patch system offers a repair method for use in the different types of compartments encountered in today's modern transport aircraft. We continue to experiment with repair systems in response to our customer's specific requirements.

The following describes the repair systems currently available:

## Gillpatch III 6306 System

Gillpatch III meets the most demanding requirements for the repair of cargo liner laminates in compartment classes B, C, and E, as described in FAR 25.857, since it provides burn-through protection required for Class C compartments.

### Description

Gillpatch III is a peel-and-stick patch which provides rapid repairs to damaged liners. It offers improved flexibility, superior impact strength, and can be used on flat and curved surfaces as a permanent repair. It meets all of the requirements of FAR 25.855, and is approved by the FAA for repairs to the common types of cargo liner laminates found in all transport aircraft.

Sandwich panel cargo liners found in many aircraft present a different set of flammability dynamics, and peel-and-stick repair patches for Class C cargo bays are limited in their applicability. Specific maintenance manuals must be consulted for repairs to sandwich panel liners.

### Applications

Approved as a repair patch for holes and tears in all cargo compartment liner laminates, as well as damage to cargo containers. It has, also, found use in cargo areas where added reinforcement is desired (i.e. lower sidewall attach points, floors).

Gillpatch III is approved by Airbus for repairing cargo liner sandwich panels which are damaged on the face side, only, as described in Airbus AMM 25-00-00 and service Information Letter (SIL) 25-097.

### Features

- Self-sticking adhesive with easy peel backing paper, making damage repair possible in seconds.
- Not affected by normal temperature variations.

### Specifications

- FAR 25.855
- FAR Part 25, Appendix F, Parts I and III (burn through requirement)

## Alternative Riveted Attachment Firmly Attaches Gillpatch III System Patch

M.C. Gill Corporation has been responding to the need in Airbus aircraft cargo compartments for a patch with greater adhesion ability. To meet this need, especially on cargo compartment ceilings, we have developed a method for riveting the patch in place, without removing the liner panel. This method is currently undergoing testing and approval prior to formal acceptance.



# GILLPATCH CARGO COMPARTMENT Patching Systems



## Gillpatch 6006 System

Gillpatch 6006 System is among the Granddaddies of peel-and-stick patches, and is a repair patch version of Gillfab 1066 cargo liner. It is a low cost, fiberglass reinforced polyester laminate with a pressure sensitive adhesive applied to the back side.

### Applications

Designed as a patch for holes and tears in cargo compartment liner laminates in Class B and E compartments, used primarily on flat wall applications.

### Features

- Made from light weight, high impact Gilliner 1066 cargo liner.
- Self sticking adhesive with easy peel backing paper makes hole repair possible in minutes.
- Not affected by normal temperature variations.

### Specifications

- FAR 25.855, except Appendix F, Part III (burn through resistance). Fire resistance.

## Gillpatch 1367P System

Gillpatch 1367P-013 System is an impact resistant, low smoke and toxicity, fiberglass reinforced phenolic laminate patch for repair of cargo liner laminates in Classes A, B, and E compartments. It is a lighter, thinner, more flexible patch than Gillpatch III and is suitable repairing superficial damage and is approved by Airbus, also, for the same types of repairs to sandwich panel liners as Gillpatch III.

### Description

Gillpatch 1367P-013 is an adhesive-backed version of Gillfab 1367A-013 cargo liner which is approved by Boeing (BMS 8-223) and Airbus (AI 2550 M1M 000800). It meets the flammability, smoke, and toxic gas emission requirements specified in FAR 25.853 and Airbus ABD 0031 as well as FAR 25.855 except for burn-through per Part III of Appendix F. The low smoke and heat release properties suggest 1367P-013 for use in effecting minor repairs in passenger and crew compartments.

### Applications

Approved for repair of Airbus cargo liner sandwich panel sidewalls with damage on face side, only.

*Reference: Airbus Service Information Letter (SIL) 25-097 and Airbus AMM 25-00-00.*

### Features

- Service temperature range: To 220°F.
- White Tedlar overlay on face side for surface reflectivity.
- Peel and stick application.

### Specifications

- FAR 25.855 – Part 25, App. F, Part I
- FAR 25.853 – Part 25, Appendix F, Parts I, IV, and V

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# ALCORE STRIKEGRID™ CEAF



## **PAA STRIKEGRID™ 1145 CONTINUOUS EXPANDED ALUMINUM FOIL (CEAF) A STRIKING IDEA FOR LIGHTNING PROTECTION**

Lightning, as a natural threat, must be considered for increased safety in the design and the certification of aircraft. Protecting aluminum body aircraft from lightning strikes involves wicking away the electric charge through the conductive metal structure. With advances in the use of composites to fabricate aircraft structures, including use of much more composite materials in the fuselage, new systems for dealing with lightning strikes are being introduced.

In response to this need, Alcore, part of the M.C. Gill Corporation Group of Companies, offers PAA Strikegrid™ 1145 Continuous Expanded Aluminum Foil (CEAF). Continuous Expanded Aluminum Foil is the industry's highest-performing lightning strike dissipation material. Phosphoric acid anodized and coated with a proprietary coating, it out performs all other ductile materials.





# ALCORE STRIKEGRID™ CEAFF

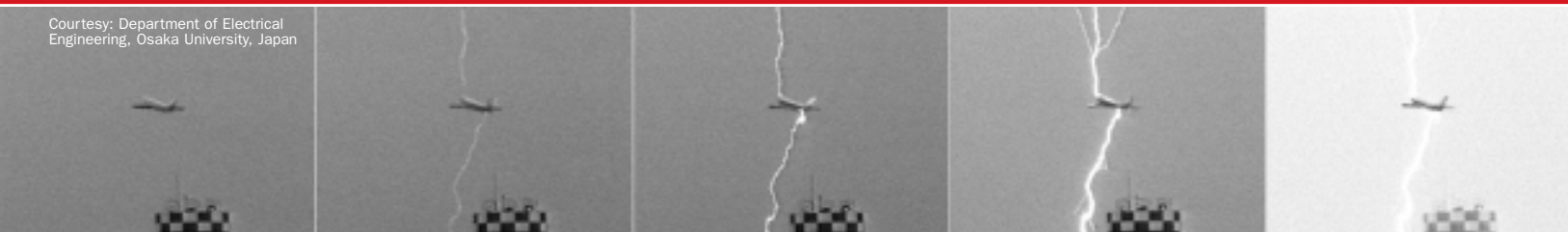
Decades of operational experience have shown that bond durability between lightning strike materials and face sheets or surfacing materials is critical to long part life, and for this, Alcore PAA-Strikegrid™ foil has no equal.

Independent analysis confirms the environmental performance durability of Alcore PAA-Strikegrid foil assuring a lower total life cost than with other lightning strike materials.

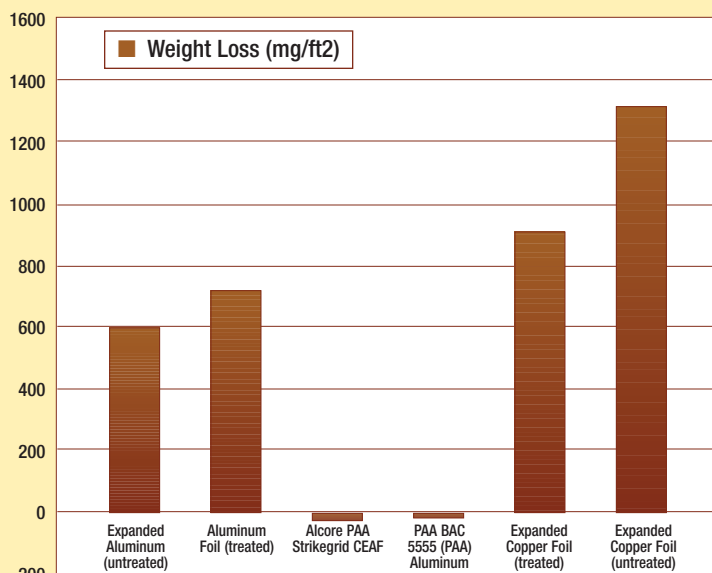
Alcore PAA-Strikegrid foil has unsurpassed corrosion resistance retaining virtually all of its physical properties after being subject to a salt spray test.

## IMAGES OF AIRPLANE STRUCK BY LIGHTNING

Courtesy: Department of Electrical Engineering, Osaka University, Japan



**Typical Weight Loss – PAA Treated Aluminum Performance Versus Other Materials Tested in Accordance with ASTM 117B**



## Applications

- Aircraft control surfaces
- Exposed composite surfaces
- Composite aircraft engine nacelles
- Marine and naval panels
- High performance composite structures
- Replacement for all other lightning strike materials
- Wind turbine blades

## Features

- Unsurpassed corrosion resistance and bond durability
- Available in continuous processed rolls
- Elevated temperature performance to 350° F/177° C
- Fire and fungus resistant
- Eliminates need for priming
- Resistant to hostile environments
- Able to withstand lightning strikes of up to 200k Amps
- Prevents surface microcracking
- Very adaptable with ply cutting equipment when combined with surfacing films

# Shocking Facts about Lightning:

- Lightning travels through the air at 90 thousand miles per second – nearly half the speed of light.
- An average Lightning stroke is 6-8 miles long
- Florida has more thunderstorms than any other state in the U.S. – about 90 a year.
- It is estimated that on average, each airplane in the U.S. commercial fleet is struck a little more than once per year.
- On the ground, only 1% of all lightning deaths occur indoors.
- Lightning provides more energy than all the electric generators combined in the U.S.
- Lightning starts half of all the fires in America's national forests.
- At least 100 Americans are killed by lightning each year.
- Lightning bolts are channels of electric energy about two inches across. They may be as short as 200 feet or as long as 20 miles.
- Three-fourths of a lightning bolt's energy is used up in heat – but enough remains to deliver a full 125 million volts of electricity.
- Golfer Lee Trevino has been struck by lightning twice.



## Product Information

Part Number	4AL8-080L-24	4AL8-080L-36	4AL8-080F-24	4AL8-080F-36
Nomenclature	L=Leveled	L=Leveled	F=Flattened	F=Flattened
Width (Inches)	24	36	24	36
Width (mm)	610	915	610	915
Weight (psf)	.016	.016	.016	.016
Weight (gsm)	78	78	78	78
Overall thickness (Inches)	.006	.006	.004	.004
Overall thickness (mm)	.15	.15	.10	.10
Part Number	1.5AL6-075F-24	1.5AL6-075F-36	2AL6-075F-24	2AL6-075F-36
Nomenclature	F=Flattened	F=Flattened	F=Flattened	F=Flattened
Width (Inches)	24	36	24	36
Width (mm)	610	915	610	915
Weight (psf)	0.008	.008	.010	.010
Weight (gsm)	39	39	49	49
Overall thickness (Inches)	.0015	.0015	.002	.002
Overall thickness (mm)	.04	.04	.05	.05

Roll Width	Length (linear ft)	Area (square foot)	Length (m)	Area (square meter)
24" (610mm)	250	500	76.2	46.5
36" (915mm)	167	500	51	46.5

## Qualifications

- Boeing approved process
- Other qualifications pending

## Availability

Alcore PAA-Strikegrid is available in continuous rolls.

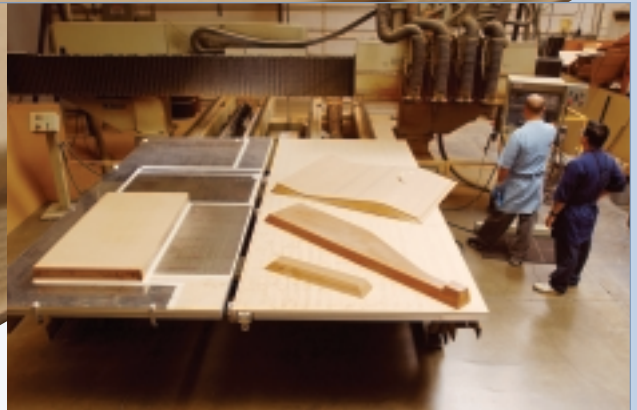
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# Vacuum Formed Custom Interior Parts



## NEW CASTLE INDUSTRIES OFFERING

Castle Industries of California is well known for delivering a competitive advantage with its ability to provide complete support for fabrication of precision assemblies, machined metal components and formed sheet metal parts.

The company's range of expertise has recently expanded to include the production of custom vacuum-formed panels for military and government aircraft interiors. Castle Industries begins the process by producing a precision forming tool. The tool is manufactured using a multi-axis CNC routing machine. The wooden tool is then used to vacuum-form panels and stiffeners that are trimmed and laminated to form a strong interior panel. These can be used in a number of applications where custom shaped decorative panels are required.

Castle Industries adds this capability to its existing capabilities in providing customers everything from tear straps used to strengthen fuselages to complex mechanisms like decompression panels and electronic equipment cabinets built to rigorous military specifications. From design and development, to prototyping and testing, to complete production of components and assemblies – Castle can deliver excellent engineering solutions and support to virtually any aerospace program.

Castle Industries is Part of the M.C. Gill Corporation Group of Companies

### FOR ADDITIONAL INFORMATION:

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# KOREX® Honeycomb Phase Out

## **N636 Kevlar® Honeycomb Logical Replacement**

With the impending end of Korex® paper production, Korex® honeycomb will soon no longer be available. The logical replacement for Korex® honeycomb applications is the latest generation N636 Kevlar® honeycomb.

M.C. Gill Corporation manufactures N636 Kevlar® honeycomb in many different cell sizes, densities and paper thicknesses and is qualified to a significant number of aerospace specifications, including many used in both commercial and military aircraft.

“Our Gillcore™ HK brand Kevlar® honeycomb is used to satisfy a range of customer requirements. For example, it is used in state-of-the-art carbon – skin panels that we manufacture for the new Airbus A380® aircraft. This high-strength, light-weight honeycomb is clearly the first choice to replace Korex honeycomb applications, which is essential with the discontinuation of that product,” said Irv Freund, VP Sales and Marketing.

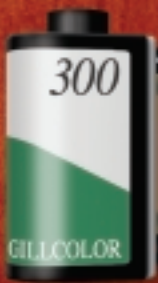
Gillcore HK Kevlar® honeycomb can be precisely sliced into sheets for use in sandwich panels or similar applications. It can also be heat formed and CNC 5-axis machined into compound contour configurations for use in many structural applications on aircraft or in other applications including marine, rail and industrial applications where Korex® honeycomb was formerly used.

For more information about Kevlar® honeycomb contact the M.C. Gill Corporation.

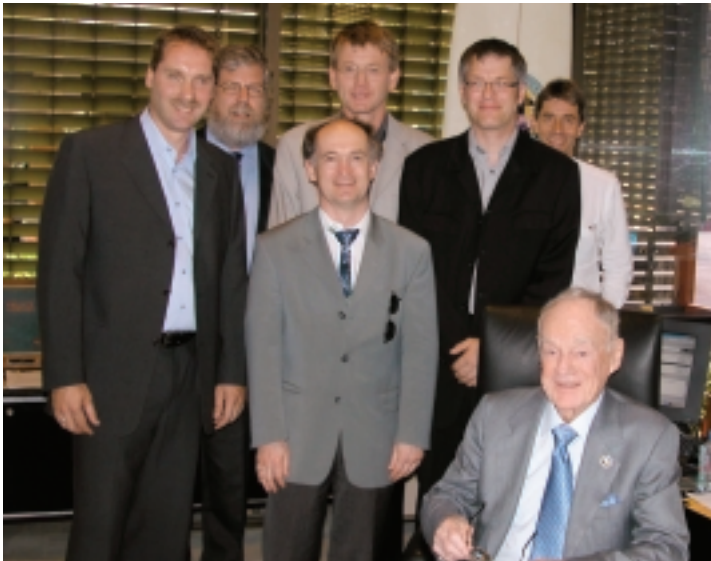
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# GILL SHOTS



From left to right: Klaus Schoote, Klaus Hoppmann, Ronald Koerber, Gerhard Penski, Bernd Ohlendorf (from Airbus), Martin Canning (from M.C. Gill) and M.C. Gill himself.

Matt Wright and Dennis Jackson from Saleen, a custom car manufacturer, drop in on M.C.



Candi Burdick chats with Tetsuya Yamamoto, Pacific Rim Consilium, our sales agent in Japan.



China Eastern Airlines staff received training on installation of inserts in Airbus replacement floor panels.





# UPDATE: Composites Merit Badge Development

We have received a lot of interest in the development of the Composites Merit Badge, which M.C. Gill Corporation is funding – so much that we're constantly asked for an update on our progress. This summer there were 4 hands-on surfboard laminating demonstrations with Boy Scouts to gauge their interest in composites. The boys were fascinated by the process and quite interested in the badge. Much was learned from their questions, which is helping write the pamphlet and requirements so that they can be presented to the National Boy Scout Office for review.



Three surfboards were completed by Boy Scouts at the San Gabriel Valley Council, BSA Cherry Valley Scout Camp on Catalina Island. These were finished over three sessions at the camp during the summer then donated to the camp for future use.



If you would like to show your support for the Composites Merit Badge development, contact:

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**San Gabriel Valley Council, Boy Scouts of America**  
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## The M.C. Gill Group of Companies



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Alcore Overnight™  
 Expedited Delivery  
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*Alcore does not sell sandwich panels. Contact M.C. Gill for these products.*



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# The Funny Side

"Wit is educated insolence."

— **Aristotle**

★ ★ ★

"Genius is more often found in a cracked pot than in a whole one."

— **E.B. White**

★ ★ ★

"I not only use all the brains that I have, but all that I can borrow."

— **Woodrow Wilson**

"Life is a moderately good play with a badly written third act."

— **Truman Capote**

★ ★ ★

The math teacher saw that little Johnny wasn't paying attention in class.

She called on him and said, "Johnny! what are 4, 2, 28 and 44?"

Little Johnny quickly replied, "NBC, CBS, HBO and the Cartoon Network!"

★ ★ ★

Sandy began a job as an elementary school counselor and she was eager to help.

One day during recess she noticed a girl standing by herself on one side of a playing field while the rest of the kids enjoyed a game of soccer at the other.

Sandy approached and asked if she was all right.

The girl said she was.

A little while later, however, Sandy noticed the girl was in the same spot, still by herself.

Approaching again, Sandy offered, "Would you like me to be your friend?"

The girl hesitated, then said, "Okay," looking at the woman suspiciously.

Feeling she was making progress, Sandy then asked, "Why are you standing here all alone?"

"Because," the little girl said with great exasperation, "I'm the goalie!"



Forks were first used in the Middle Ages, but eating with one was considered scandalous. In the 11th Century, when a Greek princess died shortly after introducing forks at her wedding with a Venetian Doge Domenico Selvo, it was perceived as divine punishment.

★ ★ ★

In 1932 James Markham obtained the 1st patent issued for a tree. The patent was for a peach tree.

★ ★ ★

An average pig squeals at a range from 100 to 115 decibels.

★ ★ ★

## Trivia

### *Ancient Beliefs:*

Seeing an ambulance is very unlucky unless you pinch your nose or hold your breath until you see a black or a brown dog.

To drop a fork means a man is coming to visit.

Cows lifting their tails is a sure sign that rain is coming.

★ ★ ★

Life span of a mosquito is two weeks.

★ ★ ★

Life span of a moose is 15 to 25 years.

Life span of the hedgehog is 10 years.

★ ★ ★

Wine grapes, oranges, figs and olives were first planted in North America by Father Junipero Serra in 1769.

An ounce of gold can be stretched into a wire 50 miles long.

★ ★ ★

Average lead pencil will draw a line 35 miles long or write approximately 50,000 English words.

★ ★ ★

Laws forbidding the sale of sodas on Sunday prompted William Garwood to invent the ice cream sundae in Evanston, Illinois, in 1875.