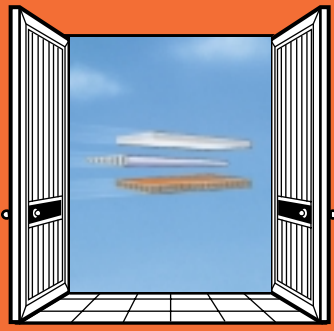


VOLUME 35
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NUMBER 3



THE M.C. GILL DOORWAY

"We try hard enough to make it happen"

New area code

M.C. GILL CORP., 4056 EASY ST., EL MONTE, CA 91731 • PHONE (626) 443-4022 • FAX (626) 350-5880 • <http://www.mcgillcorp.com>

"We're Goin' With These"



**GILL
GROWS
GLOBALLY**



Clive Smith, General Manager, Castle Industries; 12 years with Castle, 22 years in the aerospace industry; B.S. in Aerospace Mechanical Engineering.

The Fall 1994 issue of the Doorway featured Castle Industries as its cover story, describing the company's long time customer/supplier relationship with the M.C. Gill Corporation. We spent an entire day at Castle's facility in Ontario, California, conducting interviews and shooting pictures. During a lull in the day's activities, Margaret Castle, the company's owner and president remarked, "If I ever sold the company, I think I'd like to sell it to someone like Mr. Gill.

At the time, it seemed like a gracious thing to say, albeit a rather casual remark. But on June 4, 1998, the M.C. Gill Corporation purchased the assets of Castle Industries. Castle becomes the second major acquisition in the last 15 months and a wholly owned subsidiary.

A major acquisition

With 1997 sales in excess of \$11,000,000, Castle is the largest acquisition in our 53 year history. It is also the first non-composites manufacturer in the Gill Group. Castle specializes in precision sheet metal fabrication, running the gamut from initial design, development and engineering through prototype testing, to manufacturing and assembly.

Gill's New

CASTLE

A WIDE RANGE OF

Castle's product line is almost as varied as the number of ways aluminum can be used on a jumbo jet. If a piece of metal can be bent, pressed, punched, routed, shaped, molded, profiled, or fabricated into a high performance part to tolerances of $\pm .010$ " and closer, Castle has the equipment and experience to make it (almost 15 percent of their employees have 20 or more years with the company). They can make one part or ten thousand, and make them to meet stringent deadlines.

They make tear straps—a single piece of aluminum that is placed between the fuselage's outer skin and the supporting rib of the



Castle-designed electronic equipment rack for the Lockheed C-130 special operations aircraft.



Double wide flight attendant seat used on the Boeing 767 and 747-400.

Despite the seeming product dissimilarity in the two companies, Castle is an integral part of M.C. Gill Corp's long term growth strategy. As Stephen Gill, our president and CEO, noted, "It [the purchase] broadens our product base and further strengthens our position in the commercial aviation industry. There is a certain synergy created that will allow both of us to take advantage of the growth potential in both areas, i.e., precision sheet metal fabrication and advanced composites, as well as a more productive utilization of our domestic and foreign sales force."

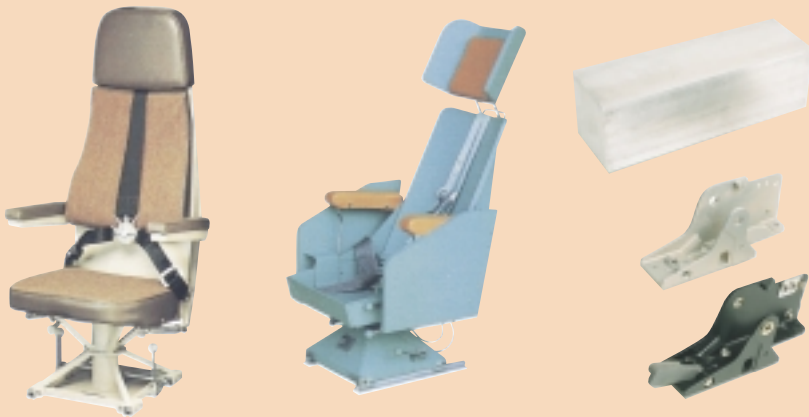
Castle was founded in 1950, just five years after the M.C. Gill Corporation. The two companies began their supplier/customer relationship in 1980

Acquisition: INDUSTRIES

AIRCRAFT PRODUCTS

aircraft to add strength and stability. And, electronic equipment storage units that range in height from 14" to 84" and in widths between 19" and 66" for the Lockheed C-130. They also make complex cockpit seating that will withstand a force of 16 G's in all 8 locking positions.

Castle has manufactured flight attendant and observer seats for all Boeing 700 series aircraft. Using certified approved fabrics and leathers, and patterns for virtually all airlines flying Boeing commercial aircraft, Castle has the capability to supply spare and replacement seating components directly to those same airlines.



This multiple usage operator's seat is designed to withstand 16 G's of force in all 8 locking positions.

Ballistic laminates fabricated by Royal Plastic protect the seat's occupant from enemy fire from the side and below.

Castle milled this attendant's seat pivot fitting (bottom) from an aluminum ingot (top).

when Castle purchased composite sandwich panels from Gill as a component for their flight attendant seats in commercial aircraft. Mrs. Castle had a requirement for the panels and she learned of M.C. Gill through a mutual acquaintance.

She had to see for herself

She requested a plant tour before issuing the first purchase order. She was impressed with the "attention to detail" and also emphasized that, "Gill was chosen because they've been in business a long time, just as we have. Once I pick a vendor, I want to establish a long-term relationship with them. It's just good business."

Customer service—a driving force that pays off

Castle always has maintained excellent relations with their customers along with a measure of trust accorded few suppliers. For example, many of their contracts with one leading air frame manufacturer are for the life of the program—meaning, for example, that as long as the OEM produces a particular model aircraft, Castle will have supplied the same parts for the last of that model as they did for the first one that rolled off the assembly line. As evidenced by the company's receipt, in 1992, of Boeing's prestigious President's Award for Excellence as an Interiors and Airline Support Supplier of the Year, Castle does more than just talk about quality products, on time delivery, and customer service.

In fact, Stephen Gill spoke directly to those points when he said, "It is no coincidence that Castle's reputation for quality products and customer service coincides with ours. The similarity of our philosophies was one of the primary reasons we initially pursued the acquisition."



Stephen Gill and Margaret Castle signing the final papers making Castle a wholly owned subsidiary of the M.C. Gill Corp.



CASTLE INDUSTRIES

*New Plant,
Modern Equipment,
State-of-the-Art
Capabilities*

Originally headquartered in Seattle, Mrs. Castle relocated Castle Industries to Southern California after the death of her husband, William in 1959. The company moved to its current Ontario facility in 1988 after outgrowing its previous Southern California locations. With 42,500 sq ft under roof on a 2 1/2 acre site Castle can accommodate future growth.

Moreover, the company has kept pace with the technological advances in the aviation industry by investing in the most up-to-date equipment available.

AFA (Accurate Fuselage Assembly)

Castle is one of fewer than a dozen suppliers in the world that has AFA certification with Northrop Grumman, one of their largest customers. Boeing originated AFA for the design of the 777 and has since adapted it for application on the 737 and 747. Using a CATIA software program, the 777 was digitized—meaning, among other things, tolerances are much more stringent and there are no blueprints or mylars. The digitized designs were transferred to digital tape and given to all 777 subcontractors (Northrop Grumman is one of the largest, and worked closely with Boeing on the original digitization).

A Life of Production Contract

Northrop Grumman awarded Castle a life of production contract for the tear strips and simple doublers—more than 750 different part numbers. One of the primary reasons Castle won the award was that they had the foresight to invest in the equipment necessary for obtaining the capability, including the CATIA program used to create CAD/CAM files which in turn are used to create finished parts.

For a complete listing of Castle's production, assembly, and inspection equipment please contact the Marketing Services Department, M.C. Gill Corporation at any of the numbers listed on the cover masthead.



Castle's "sewing" department. Here, the seamstresses sew covers for observers'/attendants' seats.



This state-of-the-art dimensional inspection scanner confirms tolerances as tight as $\pm .002"$.



Final inspection of a Boeing 747-400 decompression dado panel.



QC technician checking tolerances on a finished part.



A battery of four Haas milling machines.



Castle's assembly area for observer seats used on 757's.



Komo 3-axis high speed router, Castle's workhorse.



FANUC computer-controlled high speed mill profiling aluminum fittings.



High speed milling cutter with coolant.



Frank Thompson, Managing Director Insoleq-Semafour Ltd; with Insoleq since the company was founded 15 years ago.

WHAT GOES AROUND COMES AROUND –WITH A SLIGHT MODIFICATION

Insoleq-Semafour Ltd, Newtownards, Northern Ireland, was founded in 1983. Though it doesn't have the longevity the M.C. Gill Corporation's other operating divisions have, it is a growing company with a great deal of potential, some of which it is already beginning to realize.

The company originally was established to manufacture thermal and acoustic insulation packages for commercial aircraft. Insoleq's first customer for these packages was Shorts PLC for their SD330 and 360 aircraft.

The Beginning – Vendor and Customer

In 1987, Insoleq approached M.C. Gill and asked if we made commercial aircraft grade sandwich panels. A customer of theirs was seeking an alternate source for flooring. Naturally, we replied in the affirmative and the result was that we began supplying Insoleq with raw stock panels which they then fabricated and resold to their customer, British Aerospace (BAe), as drop-in-ready flooring.

At the time, M.C. Gill and Insoleq proved to be the right combination to supply British Aerospace. M.C. Gill had the capability and capacity to design, develop and produce the raw stock panels that would meet BAe's requirements. Insoleq's contribution included the expertise and state-of-the-art equipment for fabricating those panels.

Another Recent



CAPABILITIES



CNC profiling an Airbus 300B4 floor panel.

The Present – One Big Happy Family

Fast forward 10 years when the Summer 1997 issue of the Doorway informed our readers that we had purchased the assets of Insoleq and it became a wholly-owned subsidiary of the M.C. Gill Corporation.

Since then, Insoleq has been awarded a contract by the Aviation Services Division of British Aerospace to supply the fabricated flooring panels and raw stock cargo liner for the conversion of the Airbus A300B4 from passenger to an all-cargo configuration. The contract is for an initial 20 aircraft with additional shipsets planned.

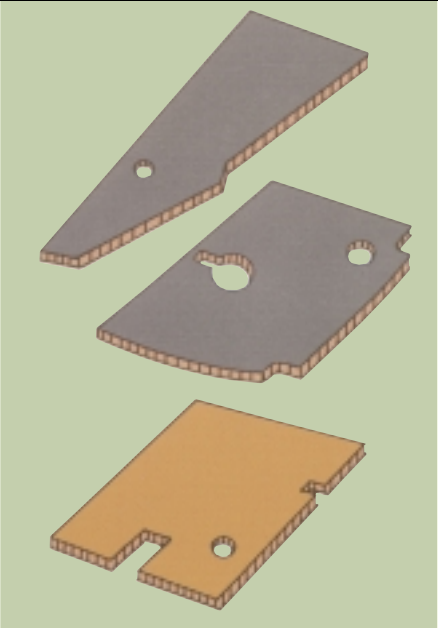
Flooring and Liner from the Gill Plant

The raw stock panels and liner will be manufactured at Gill's El Monte, California plant and shipped to Insoleq's Northern Ireland facility where the floor panels will be fabricated to drop-in ready status before shipment to Aviation Services.

Gillfab 4105C, constructed from fiberglass cloth and modified epoxy resin, will be used for the fabricated

Gill Acquisition: LTD., NORTHERN IRELAND

FOR FABRICATING TO ANY SPECIFIED CONFIGURATION



CNC configured BAe 146-200 floor panels.



Edge filling the finished floor panel to seal against moisture.



A thermal/acoustical insulation package with cut-out.

flooring. The raw stock Gilliner 1366, made with fiberglass cloth and polyester resin, will be used to line the sidewalls and ceilings of the freighter conversions.

In addition to its manufacturing activities, Insoleq will also act as a warehousing and distribution point from which M.C. Gill raw stock products will be sold and shipped to the company's European customers. With Insoleq already established, products can be shipped from a point thousands of miles closer to customers than in the past. It is simply part of the implementation of the Corporation's overall plan of orderly and systematic growth throughout the world - one which will ensure future success and continued emphasis on improved customer service.



Signing the contract for the Airbus cargo conversions, left to right: Brian Robertson, BAe Aviation Services Buyer; Frank Thompson; Gary Morrison, Insoleq Operations Manager; and Ray Miller, BAe Aviation Services Materials Manager.



Phillip Gill, President Royal Plastic Manufacturing Co.; six years with Royal; 36 years in the aerospace industry; B.S. in Chemical Engineering from Oregon State University.



And More Aircraft **ROYAL PLASTIC**

No review of M.C. Gill's operating divisions would be complete without the inclusion of Royal Plastic Manufacturing Company. Founded in 1949, M.C. Gill purchased the Minden, Nebraska firm in 1980.

Like M.C. Gill, Royal manufactures reinforced plastic composite parts for the aircraft and aerospace industries. Both utilize similar raw materials, i.e., thermoset resins and synthetic reinforcements. But whereas M.C. Gill is a raw stock manufacturer of large dimension flat sheets and flat sandwich panels Royal specializes in contoured and complex-shaped parts.

While at M.C. Gill, Phillip was Vice-President in charge of R&D, with stints as Marketing Manager, Production Manager, as well as Product Development. He was responsible for, among others, the adhesive line, Nomex honeycomb capabilities, unidirectional machine, and vertical cloth prepregger. At Royal, he is responsible for formulating the marketing strategy necessary to keep Royal in its leadership position and for overseeing their sales and profitability growth. In the past five years, business at Royal has undergone a significant increase. Sales have increased 250 percent, employment has increased 170 percent and productivity per employee has jumped by fifty percent. Twenty percent of Royal's work is value-added including attaching hardware and other components to the composite parts. Also, half of all parts are shipped with a painted surface.

(Continued on pg. 10)



Royal provided an insulated duct that supplies conditioned air for this Delta rocket's payload—a communications satellite.



A typical sampling of Royal and Space-Flex parts: bellows large and small distribution ducts; turbine housings; air inlet

Aircraft Synergy with and SPACE FLEX



One of two air cleaners for the Blackhawk helicopter; constructed of fiberglass reinforced epoxy and urethane foam.



An avionics equipment cabinet-part of the Royal-developed RP900 modular composite cabinetry.



Oil cooler deflector for Hughes helicopter.



Auxiliary power unit cooling duct for Allied Signal



and wire supported neoprene and silicone rubber hoses; screens; and, plenums for sound attenuation and air distribution.



Space-Flex Company was acquired by the M.C. GillCorp in 1983. The company shared many of its capabilities with Royal Plastic in that it specialized in short runs of contoured and complex composite or reinforced plastic parts. It likewise utilized many of the same materials and processes as Royal (see the listing on page 11), although its specialty was flexible reinforced rubber composites.

A sampling of Space-Flex products include:

- *Flexible and rigid hoses and ducting used to cool or heat electronics, crew, and/or passengers of commercial and military aircraft;*
- *Dust and moisture boots to protect landing gear shock absorbers;*
- *Aircraft instrument panels;*
- *Flexible joints that allow metal parts to expand and contract without breaking or buckling; and,*
- *Lightweight screens for air cooling system filters.*

Founded in 1962, Space-Flex parts could be found on Douglas DC-10, all Boeing 700 series aircraft, Lockheed L-1011's as well as the space shuttle and the B-1B and F-15 military aircraft. In 1990, the company moved from its Los Angeles location to M.C. Gill's Easy Street facilities. Three years later the decision was made to incorporate Space-Flex sales and production functions with Royal Plastic's Minden, Nebraska, operation.



49 YEARS EXPERIENCE MAKING



Matched die pressing of hat sections for the DC-8 and DC-9 floor panels.

Royal always has enjoyed a measure of success despite the often volatile airplane and aerospace industries. The company has been and is held in high esteem by their customers—a testimony to the dedication of Royal's founder, Harley Cole, a true pioneer.

In 1989, then Nebraska Governor Kay Orr participated in groundbreaking ceremonies for a 24,000 square foot manufacturing facility which was completed and in operation the following year followed by a 12,000 sq. ft. addition in 1997. In 1992 Phillip Gill was named president of Royal succeeding his brother Stephen who, in addition to his responsibilities as president and CEO of M.C. Gill, had held the same positions at Royal since 1980.

Well-equipped for contoured parts.

Matched metal die parts are produced in four presses up to 100 ton capacity and 24" x 144" platen areas. Vacuum bagged parts are cured in ovens up to 70" x 85" x 110" in size. Curing temperatures can reach 600°F for high temperature resins. In addition, Royal has two autoclaves—one 54" diameter, 98" long; another 33" diameter, 60" long. Also a CNC machine. And to support their value-added work, Royal is certified to paint to numerous process specifications.



Using a plaster mandrel to lay up a fiberglass reinforced silicone rubber part for an Allied Signal auxiliary power unit.



Preparing panel for use as a bellows flange on top of the air cleaner pictured on page 9.

CONTOURED COMPOSITE PARTS



Making a pattern and using a laser beam to cut Spectra®, part of the radome cover in the picture below.



A vacuum bagged radome prior to placing in the autoclave to cure.



BDA Rx antenna f or a Global Positioning Satellite II, constructed from cynate ester/quartz filament wrapped with dindretic copper.



Phil Gill inspecting a display of Royal produced composite parts.

In order to produce the wide variety of sizes and shapes, Royal’s success depends on the capability, experience and familiarity with a diverse number of reinforcements, resins and molding processes. The following tabulation is a partial listing of materials and processes used by Royal.

Reinforcements E glass cloth and ribbon S-2 glass cloth and ribbon Aramid fiber cloth and ribbon Nylon and Nomex® cloths Carbon cloth and ribbon Quartz cloth and ribbon Spectra 2000	Rubbers Butyl Buna-N Silicone Fluorosilicone Neoprene
Resin Systems Phenolic Polyester and vinylester (fire retardant) Epoxy (fire retardant and/or high service temperature) Polyimide (high temperature) Silicone Cyanate ester (cyanated phenolic) Bismaleimide	Processes Hand lay up Resin transfer molding Compression molding Flexible hose Vacuum bagging Autoclave cure

1992

1993

1994

1995

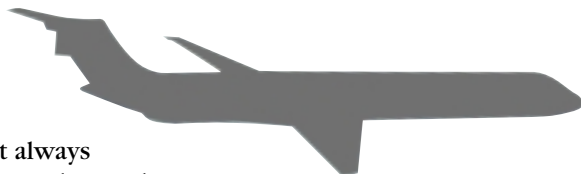
1996

FROM START....

Off And Running

In the fall of 1992, the M.C. Gill Corporation began supplying then McDonnell Douglas/Long Beach with fabricated flooring panels for their portion of MD/80 and MD/90 production.* M.C. Gill manufactured the raw stock panels and profiled them to Douglas specifications. This included digitizing Douglas drawings, programming our CNC machines, then cutting to size, routing edges, drilling and countersinking insert holes, potting edges, installing inserts, stamping reference numbers, cleaning, inspecting and shipping drop-in-ready parts to Long Beach.

The contract was renewed twice after the original signing and the M.C. Gill employees involved with the project always enjoyed an excellent relationship with their Douglas counterparts. In the almost six years of fulfilling this particular assignment for Douglas we shipped more than 10,000 pieces for more than 180 aircraft. Our rejection rate was very low and rarely did an order go out late. One of major contributions was the flexibility to accommodate frequent scheduling change as they occurred—a long standing method of operation.



* About a year later, we signed a similar contract with Douglas/Salt Lake City for their portion of those two aircraft models. The Summer 1994 issue of the Doorway chronicled the event and described in detail our capabilities in the area of custom fabrication.

(Continued on next page)

Typical fabricated floor panel manufacturing operations



1996

1997

1998

1999

2000

.....TO FINISH

Into the Home Stretch

Given the background on the previous page, the contract renewal on May 20, 1998, was a somewhat bittersweet occasion because it marked the last time it would occur. Since the sale of McDonnell Douglas, the company has not taken new orders for the MD-80/90 and will produce only those aircraft required to meet existing orders. Once those orders are filled, MD-80/90 production will cease—sometime in the year 2000.

The M.C. Gill Corporation is very pleased to have had the opportunity to team with Douglas in the production of the MD-80 and MD-90. It was a good working relationship and we look forward to future associations with the Douglas Products Division. We strive to be a company our customers enjoy doing business with.

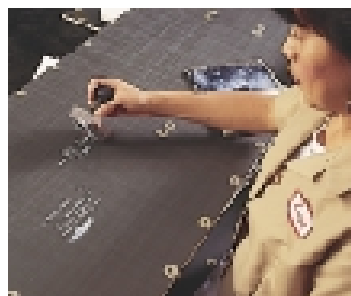


The last hurrah: signing the final contract for fabricated flooring panels for the MD-80 and MD-90.

Standing, left to right, Jack Hansen, Senior Contracts Negotiator; Rick Frady, Senior Manager, Outside Manufacturing; Rosalind Merrow, Coordinator; Ron Katje, Group Leader, (all with Douglas Products Division). Seated, left to right, Robert L. Thornton, Director Outside Manufacturing; Scott Harris, Senior Buyer (both with Douglas); Stephen Gill, President and CEO; and George Boze, Program Manager, M.C. Gill Corporation.

Shown at the right is a fabricated carbon/Nomex® floor panel.

Finishing operations including final quality assurance inspection.



THE FUNNY SIDE

Never criticize a man until you've walked a mile in his shoes. Then, when you're a mile away, you've got his shoes, and you can say anything you want about him.

★★★★★

Why does an inspiring sight like a sunrise always have to take place at such an ungodly hour?

★★★★★

If the world is getting smaller, why do postal rates keep increasing?

★★★★★

If you don't like tailgaters don't buy bumper stickers.

★★★★★

If necessity is the mother of invention, how come so much unnecessary stuff gets invented?

★★★★★

After George Washington told his father he cut down the cherry tree, his dad said, "I'm not mad at you son, but the environmentalists are going to have a fit."

★★★★★

One businessman to another, "The good news about what I'm proposing is a huge profit. The bad news is 1,000 hours of community service."

★★★★★

Change is inevitable—except from a vending machine.

★★★★★

As long as there are exams, there will be prayer in public schools.

★★★★★

When you do a good deed, get a receipt. Heaven may be like the IRS

★★★★★

Did you fight your way to the top of the food chain to be a vegetarian?

★★★★★

Some gene pools could use a little chlorine.

Trivia

More than one-third of the 20,000 TV commercials produced annually and aimed at children are for sugared breakfast cereals.

★★★★★

The average American sees or hears 560 advertisements per day.

★★★★★

Only the left hind foot of a rabbit is lucky. And the rabbit has to be killed at the full of the moon. By a cross-eyed person.

★★★★★

Originally, balloons were made of paper and dice were four-sided.

★★★★★

Only an ostrich has larger eyes than a horse.

★★★★★

30 million gallons of wine was lost in the 1906 San Francisco earthquake.

★★★★★

Men fall out of hospital beds twice as often as women.

★★★★★

It cost \$26,000 per hour to fly Air Force One, \$5,500 per day to operate the Goodyear Blimp, and \$82.19 per day to house a federal prison inmate.

★★★★★

Oldsmobile sold four cars in its first two years. VW, two "Beetles" (in the U.S.) its first year and Harley Davidson, eight cycles in its first three years.

★★★★★

The average person spends 911 hours brushing his teeth.

★★★★★

36 languages are taught in U.S. colleges and universities today that weren't taught 10 years ago; 15 languages are not taught today that were taught 10 years ago.

★★★★★

85 percent of Tupperware's profit come from overseas sales.