**Made to Measure**

**Invisible Supplier Has Penney's Shirts All Buttoned Up**

From Hong Kong, It Tracks Sales, Restocks Shelves, Ships Right to the Store

Inside a 'Radical' Power Shift

By GABRIEL KAHN

On a Saturday afternoon in August, Carolyn Thurmond walked into a J.C. Penney store in Atlanta's Northlake Mall and bought a white Stafford wrinkle-free dress shirt for her husband, size 17 3/4, 34/35 sleeve.

On Monday morning, a computer technician in Hong Kong downloaded a record of the sale. By Wednesday afternoon, a factory worker in Taiwan had packed an identical replacement shirt into a bundle to be shipped back to the Atlanta store.

This speedy process, part of a streamlined supply chain and production system for dress shirts that was years in the making, has put Penney at the forefront of the continuing revolution in U.S. retailing. In an industry where the goal is speedy turnaround of merchandise, Penney stores now hold almost no extra inventory of house-brand dress shirts. Less than a decade ago, Penney would have had thousands of dollars' worth of shirts warehoused across the U.S., tying up capital and slowly going out of style.

The new process is one from which Penney is conspicuously absent. The entire program is designed and operated by TAL Apparel Ltd., a closely held Hong Kong shirt maker. TAL collects point-of-sale data for Penney's shirts directly from its stores in North America, then runs the numbers through a computer model it designed. The Hong Kong company then divides the orders into sizes, and ships them directly to each Penney store, bypassing the retailer's warehouses and corporate decision makers.

TAL is a no-name giant, the maker of one of the eight dress shirts sold in the U.S. Its close relationship with U.S. retailers is part of a power shift taking place in global manufacturing. As retailers strive to cut costs and keep pace with consumer tastes, they are coming to depend more on suppliers that can respond swiftly to their changing needs. This opens opportunities for manufacturers, and TAL has rushed in, even starting to take over such critical areas as sales forecasting and inventory management.

On the weekend Ms. Thurmond made her purchase, the same Atlanta store sold two sage-colored shirts of similar size but of another Penney house brand, Crazy Horse. That left none of this size and color in stock at the store. Based on past sales data, TAL's computers determined that the ideal inventory level for that brand, style, color and size was at that particular store was two. Without consulting Penney, a TAL factory in Taiwan made two new shirts. It sent one by ship, but to get one in the store quickly, it dispatched one by air. TAL paid the shipping but sent a bill for the shirts to Penney.

Instead of asking Penney what it would like to buy, "I tell them how many shirts they just bought," says Harry Lee, TAL's managing director.

TAL was born in 1947 after Chinese border guards blocked Mr. Lee's uncle, C.C. Lee, from importing state-of-the-art sewing machines to Shanghai for fear they would hurt the local textile industry. So the uncle set up shop in Hong Kong, then under British rule. With low-cost Asian manufacturing, TAL thrived. It supplies labels such as J. Crew, Calvin Klein, Banana Republic, Tommy Hilfiger, Liz Claiborne, Ralph Lauren and Brooks Brothers. Harry Lee, 50 years old, joined the family business 30 years ago after earning a Ph.D. in electrical engineering in the U.S. and serving a stint at Bell Labs.

Now, TAL is negotiating a deal to manage Brooks Brothers' shirt inventory the same way it does Penney's. For Lands' End, TAL stitches made-to-measure pants in Malaysia and flies them straight to U.S. customers, with a shipping invoice that carries the Lands' End logo.

These retailers have been willing to cede some functions once seen as central because TAL can do them better and more cheaply. Rodney Birenz Jr., vice president for sourcing of J.C. Penney Private Brands Inc., describes "an environment where our added efficiencies and Penney's ability to achieve with TAL. Before it started working with TAL a decade ago, Penney would routinely hold up to six months of inventory in its warehouses and three months' worth at stores. Now, for the Stafford and Crazy Horse shirt lines that TAL handles, "it's zero," Mr. Birenz says.

With decisions made at the factory, TAL can respond instantly to changes in consumer demand, dropping production of a style quickly or halting it if there's a slump. The system "directly links the manufacturer to the customer," says Mr. Birenz. "That's the future."

Retailers across the board have sought to lower the amount of inventory they hold, both to cut costs and to reduce goods sold at a markdown. That means working more closely with suppliers. Wal-Mart Stores Inc. has pioneered a system that opens its computer system to suppliers all over the world. Suppliers can track how their items are selling online and even at individual stores. They can anticipate demand and communicate it back to Wal-Mart buyers. But Wal-Mart still handles all the warehousing and distribution, and it stops short of allowing suppliers to place their own orders.

The degree of power Penney turns to TAL is radical. "You are giving away a pretty important function if you outsource your inventory management," says Wayne Chan, a printhead with Meadway & Co. in Hong Kong. "That's something that not a lot of retailers want to part with."

Penney, too, was reluctant, and the step only after building up trust over years of working with TAL. But Penney's biggest task was to move the arrangement another step further: designing new shirt styles and handling their marketing and testing.

TAL's design team in New York works closely with designers in New York, Dallas come up with a new style, within a month its factories churn out 100,000 new shirts. For a test, these are offered for sale at 50 Penney stores. A month after that. Because TAL manages the entire process, from design to ordering yarn, it brings in new styles from the testing the full rollout in four months.
Asian Shirt Supplier to Penney
Restocks the Stores on Its Own

The system in effect lets consumers, retailing managers, pick the styles. When you can put something on the floor that the customer has already voted on is then we make a lot of money," says Penney's Mr. Birkhas.

Like the retailer, TAL changed its methods in response to economic pressures. TAL has seen the price of its shirts fall almost 20% over five years as low-cost textile manufacturing exploded in China's Guangdong province. It could jump even more in 2005, when textile-importing nations such as the U.S. must complete a phasing out of import quotas for countries in the World Trade Organization. Most of TAL's manufacturing is in places with higher wages than Guangdong, such as Thailand, Malaysia, Taiwan and Hong Kong. "Our customers need a reason to buy from us," Mr. Lee says.

Learning by Failing

TAL learned the supply-chain business the hard way. In 1993, a U.S. wholesaler that handled its shirts, Damon Holdings Inc., failed. Mr. Lee, fearing a loss of sales and figuring he understood the wholesaling business, bought Damon. The result was "a big shock." A manager TAL had put in charge of Damon went on a buying spree, and soon its warehouses were crammed with two years' worth of shirt inventory that was going out of style. Shirts that cost $15 to make had to be sold for $3. By the time TAL closed Damon in 1991, it had lost $50 million.

But the experience started Mr. Lee thinking about a way to do business more efficiently, by linking his Asian factories directly with U.S. stores. "The failure gave us a head start," he says.

Around the same time, TAL had begun supplying Penney with house-brand shirts. Mr. Lee saw that Penney was holding up nine months of inventory, twice what most competitors kept. "You didn't have to be a genius to realize you can do a lot better than that," he says. Visiting Penney headquarters in Plano, Texas, he floated a radical solution: Why not have TAL supply shirts directly to Penney stores instead of sending bulk orders to a Penney warehouse?

Mr. Birkhas was skeptical. But he saw that savings could be huge. It cost Penney 20 cents a shirt to have its warehouse workers sort out orders in the U.S. TAL could do it for 14 cents.

And such a system would let Penney respond more quickly to consumer demand. This had been a problem for the retailer, which often needed months to restock hot-selling styles. "Stores were years behind," Mr. Birkhas says. "That killed us." It took TAL a year to set up the system in Asia. Mr. Lee then began by supplying a single Penney store in Kansas City, Mo. He enlisted a Chinese numerologist to choose an auspicious day: June 20, 1997. Factory workers toasted the occasion with champagne. Things went smoothly, and within months, TAL was delivering shirts directly to all of Penney's stores in North America. Inventory levels dropped.

There was one clear downside: If a store sold out of a style of shirts, it couldn't quickly get more from a regional warehouse. So TAL agreed to sometimes send shirts to stores by air freight--a costly step but one TAL would take to keep the customer happy.

Soon Mr. Lee saw another opportunity. Penney's sales forecasts often missed, sometimes overstating shirt needs by as much as two months' worth. Sales forecasting is one of the most difficult tasks for retailers, yet one that's increasingly important to get right as inventories get tighter. Penney blames the problem on older-generation software.

Convinced he could do better, Mr. Lee pitched an even more outlandish idea: Why not let TAL staff in Hong Kong forecast how many shirts Penney's stores would need each week? This time, Penney executives were listening.

Mr. Lee was operating on a simple premise. If he could get sales data straight from the stores, he could take the consumer's pulse and respond instantly, ordering more fabric and increasing production where needed. Penney buyers would just be in the way. "I can do all the pieces of the puzzle," he says.

On "Autopilot"

He hired dozens of programmers, who designed a computer model to estimate an ideal inventory of house-brand shirts for each of Penney's 1,940 North American stores, by style, color and size. Penney provided him with goals for how often stores' inventory should be replenished, then stepped back and let him do the rest. "It's an autopilot," says Mr. Birkhas, and TAL is the autopilot.

TAL's computer model began to outpace the Penney system still used for the retailer's other merchandise. For some shirt models, stores could now keep half a much in stock as they had previously.

The system hasn't been flawless. Ming Chen, a manager at TAL's Taiwan factory, recalls a few occasions when TAL underestimated Penney's needs significantly. She says the factory "sacrificed other customers" to rush out Penney's order first and sent some shirts by air freight to be sure they arrived on time. Cycling 10 times as much as ocean shipping, sending shirts by air was "a painful decision," she says. "But sometimes you have to decide which customers you're going to take care of.

Sitting in his Hong Kong headquarters, in a neighborhood whose factories have given way to office space, Mr. Lee is thinking of ways to push his idea to the next level. He would like to form a joint venture with Penney that would manage the supply chain for some other manufacturers that supply the retailer. TAL has already started doing this with underwear. "Why not consolidate it all here?" he asks.

Mr. Birkhas says Penney is seriously considering the idea.

-Dan Morse contributed to this article.