

# Distribution Optimization

## Improving Distribution Performance in the Face of Rapidly Escalating Costs

By **Al Coulter** and **Paul Matlock**

**Y**ou have been delivering “successfully” to your customers for some time. But, do you have a customer focus that separates you from your competition? Do you watch your costs so closely they are among the lowest, recognizing that they are probably more than 30 percent of your total operating costs exclusive of SG&A? Now, as diesel and gasoline prices continue to rise, you are being forced to take an even closer look at your distribution costs. This article examines how you can improve your distribution performance and costs in the face of rapidly escalating costs, many of which are out of your control.

We operate in an environment of increasing competition, where production costs are relatively well understood and can be improved with some effort and capital. We are not sure that the same can be said for understanding — let alone knowing — how to reduce compressed trucking costs. In our March 2006 article in *CryoGas International*, “Lean Thinking in the Compressed Gas Industry,” we commented on a number of factors to improve performance and costs in the compressed gas business. We will play some of those ideas back for you in this article and relate them to compressed distribution performance and costs.

### TO BEGIN...

Let’s keep in mind that the delivery of goods and products to customers is both a cost to you, and a service to them. Being customer oriented, you should place service first. With profits in mind, however, you should also give serious consideration to your operating performance and costs.

In our business, the customer places an order, you schedule a delivery, and the driver makes the delivery. There are a myriad of small yet significant steps in between the order and the delivery, the effect of good service to the customer, and the paid invoice. A process approach to distribution enables you to identify each of these steps, and the costs and issues related to them.

### EXAMINING THE PROCESS

Let’s examine the process. Does your staff carefully review how and when your customer service and/or order entry groups receive, identify, enter and process orders? Do they determine how to improve the opportunity to increase your service level and lower your distribution costs via these administrative tasks? Does your team examine delivery schedules, the type and configuration of delivery equipment, and the maintenance schedules for that equipment — all against some well developed goals from past experience and against estimates of future bench-marked performance? Do you have well-trained, and well scheduled and dispatched drivers? And do you know that your company is in compliance with the DOT and any new security regulations?

We have found that well-trained and motivated drivers are one of the singularly most critical means of moving toward outstanding distribution customer service and reduced costs. Does your driver training include briefing them on the “why of delivery charges,” the “why of hazmat surcharges,” or the changes that are occasionally made in the color coding and new labeling of cylinders?

We believe most would agree that to improve performance and lower costs there should be goals that your organization and the key people within it seek to meet. The problem, from our experience in compressed distribution, is that many companies do not know what these goals should be, what bench marks to compare with, and how to achieve better results using the bench marks and goals as a measure of improved performance.

### TRIMMING DELIVERY COSTS

Question: does your company have compressed trucking costs that approach or beat \$2.00 to \$3.00 per cylinder for local customer deliveries, and/or \$1.25 - 1.50/cylinder for inter branch deliveries? While we agree that for some companies these may be a stretch, we are aware of companies that do deliver this kind of performance!

Most companies that operate delivery vehicles and trucks understand the maintenance and replacement aspects of their fleet. After you pay more than you think you should for a particular maintenance job, you will generally have it analyzed and do something about it. Our experience is that unit costs for *maintenance* of compressed delivery straight trucks should be about \$.15/mile. We suggest that this is an important and easy bench market for good truck maintenance performance.

More difficult compressed distribution performance goals and measures include:

- What is your market’s and your company’s level for *Percent On-Time Delivery*, or if this is more noticeable to the customer, your *Percent of Missed Deliveries*?
- We have noted above, some \$/cylinder delivery cost bench marks. What are yours? How do you get to what they should be to maximize your company’s distribution cost performance?
- Are you in DOT Compliance? Today, and particularly after 9/11, there are new Homeland Security dimensions to the traditional DOT Compliance regulations, making this a more onerous and expensive task, particularly if you are not in compliance.

The first two items above have to do with the planning of optimum delivery routes. They involve maximizing the full cylinder payload



The delivery of cylinders, gases and hardgoods to customers is both a cost to you, and a service to your customers. Photo courtesy of GTS.

for each route, every day, while allowing capacity for MT cylinder pickup. Developing a route structure which has flexibility for customer requirement changes along those routes is critical. Well-run compressed distribution players have learned that tying their customer service IT and sales administration order entry systems and procedures to delivery route design and scheduling, produces greatly improved on-time delivery and lower distribution costs. This is particularly true when these efforts are combined with analytical efforts to maximize cylinder payloads for daily deliveries.

A common but normally under-managed aspect of compressed (and bulk liquid) distribution efficiency is the prevalence of “customer delivery window restrictions.” This is more often than not, a customer communications and sales management problem, commonly overlooked in the acquisition of new business. Too often the account salesman will not even cover this important aspect of customer service or will agree to delivery windows that are very expensive, if not prohibitive to profitable service. Our experience is that this is one of the biggest problems in improving effective distribution cost management. Does your sales management and sales force understand the economic penalties associated with poor “delivery windows”?

New IT and distribution software technology is now permitting the customer service function to be well integrated into delivery planning and execution. And part of this is the automation of the paperwork that drivers have to fill out to satisfy DOT regulations and customer requirements for proof of delivery for billing.

### DEVELOP A SYSTEMATIC APPROACH TO DISTRIBUTION

The first step in this process is to develop and implement a systematic approach to your routing. This requires mapping out in detail each step of your distribution process including all associated costs, like equipment, personnel, fuel costs, length of routes, etc. The purpose of this step is to communicate your service level to customers while achieving effectiveness in controlling your costs. You want to assure your customers that you are delivering at the most fair cost and best service level and that you are committed to 100 percent customer satisfaction.

Long-term, you want to provide a framework for an ongoing distribution effort that can be sustained as your business changes and can provide an instrument for future decision making. Your delivery schedule and process should allow for implementing changes to achieve lower distribution costs and premier service on a continuing basis.

### IMPLEMENT A SCHEDULED DELIVERY PROGRAM

There are a number of steps that you need to take to accomplish this:

- Map existing and prospective customers, and keep customer information up to date.
- Determine routing zones.
- Establish delivery priority and resulting trucking routes.
- Establish new customer distribution evaluations and a validation process for effective deliveries.
- Determine optimum truck loading for fuel efficiency and best customer service.
- Establish triggers for reviewing and evaluating the effectiveness of new programs and have measures for customer service and cost performance improvements.
- Determine optimum driver staffing, scheduling, dispatch and training.
- Determine how equipment numbers, suitability to delivery, maintenance schedules and reliability effects delivery scheduling.

We are fully aware that a systematic approach is easier to define than to implement. A good system requires good communication, discipline and cooperation – internally and with your customers.

As a recently formed company, GTS of Allentown PA, realized that distribution plays a large role in increased customer satisfaction and was

a significant cost driver in the organization. (See *CryoGas International* profiles “GTS — Combining the Capabilities of the Majors with the Characteristics of a Distributor,” August/September, 2005.) Figure 1 is a conceptual representation of how GTS organizes its delivery zones and route structure. Kirk Gentry, General Manager of GTS’s Allentown region, explains that “in general and in fairly dense markets, a one hour radius for cylinder delivery applies.” In Figure 1, there are five cylinder straight trucks making deliveries in five delivery zones. The central local delivery and

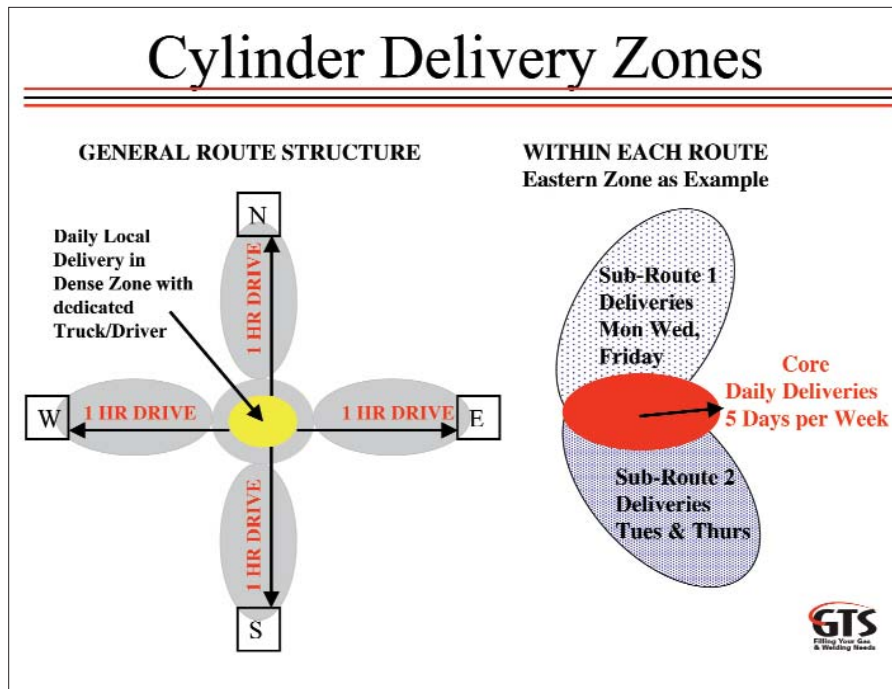


Figure 1 Distribution Map

Source: GTS.

the north, south and west zones are simply shown on the left side of Figure 1. On the right side of Figure 1, the eastern delivery zone has been expanded to show core everyday deliveries to customer clusters. To handle more distant and less dense parts of the eastern zone, GTS has set up two sub-zone routes. (This example is relevant to the north, south, and west delivery zones as well.) In the eastern zone the Core area (shown in red) gets deliveries everyday. On Monday, Wednesday, and Friday the same truck that covers the core area also covers the Sub-

Route 1 customers. On Tuesdays and Thursdays that truck also covers the Sub-Route 2 customers. This allows GTS to provide a high level of customer service to both their most densely populated customer areas as well as the more distant customers.

## CUSTOMER SERVICE OPPORTUNITIES

You are going to want to assure that you continue to provide superior customer service, the kind that differentiates you from your competition. As you prepare your scheduled delivery program, it is a good time to review customer history and customer contacts. This is the time to identify those customers that would benefit from proactive contact to make sure their orders are received in a timely manner and support your delivery schedule. Call customers that forget to call you and/or those that tend to call at the last minute. Work with them so that your costs are minimized and their service is not compromised.

Provide training for your customer service personnel in the following ways:

- Investigate and document the history of customer requirements.
- Establish a formal listing of customer contacts and responsibilities.
- Establish a formal proactive customer contact program for assuring efficient order taking and processing.
- Link this data to your customer contact program data and delivery schedule data to make communication between groups more efficient.
- Provide training to customer service personnel.
- Establish a new customer validation program and implement it.

Once these steps are in place you will have “Deliverables” including a customer service and contact system that provides superior customer service. You will also have a customer service system at the lowest achievable cost.

## DISTRIBUTION EQUIPMENT

Earlier, we acknowledged that delivery equipment represents one of your company’s largest capital investments and that its costs should be carefully managed. When looking at equipment from the perspective of distribution costs, your objective should be a right-sized and right-type fleet for delivery, and a maintenance program that enables you to attain the lowest achievable maintenance costs. To accomplish this you need to investigate truck loading and access issues. Is your fleet the right size and are individual vehicles the right size to maximize payload for delivery of fulls, pallets, banks, etc? Are they the right size to pick up empties when analyzed against the optimum route structure and delivery scheduling?

## COMPLIANCE WITH DOT & SECURITY REGULATIONS

DOT and security regulations are an important component of a safe and well-run trucking operation. Your goal is always zero violations. Fines and liability issues can cost you time and money. You are subject to fines and other possible costs if your drivers do not understand the regulations and comply with them. Federal Motor Carrier Safety Hazmat policies and regulations that govern how truck fleets should operate with applicable regulations are published in DOT Driver Reg-



When looking at equipment from the perspective of distribution costs, your objective should be the right size and right type fleet for your deliveries. Photo courtesy of GTS.

ulations and US DOT HM 232. DOT has a special website under its Federal Motor Carrier Safety Administration that details all aspects of these regulations that you and your distribution staff should be aware of (see [www.fmcsa.dot.gov/safety-security/hazmat/hm.htm](http://www.fmcsa.dot.gov/safety-security/hazmat/hm.htm).) We will provide more information on this important part of distribution in a later issue of *Cryogas International*.

## USING LEAN THINKING AND TECHNOLOGY

There is an opportunity to use Lean Thinking and technology to assist in your distribution optimization. A team of GTS employees led by Kirk Gentry did just that. To work on distribution optimization, GTS selected a team of key individuals — from order entry, dispatch, loading, routing, invoicing, and inventory control — to identify and eliminate any non-value-added costs from GTS’s distribution system. To do this the team “value mapped” by performance, all distribution processes/tasks and assigned times to each task based on input from GTS employees.

Next, the GTS team examined Information Technology (IT) to see what functions could be automated or eliminated. Several techniques for examining IT were used including bar-coded delivery tickets, computerized load sheets, and an online routing system that tells the user what is being delivered that day, where it is being delivered, and who is delivering the item. Once the existing system was mapped, a system was defined. In the GTS example, the “To-Be” system identified ways to eliminate about 28 minutes per day per driver of wasted time and therefore “non-value” costs.

## CONCLUSION

Are you satisfied with your customer service operation in terms of its reliability of delivery, attendance to customers’ needs, and costs of those deliveries? Are you at, or close to, the \$2.00 to \$3.00 per cylinder delivery costs mentioned at the beginning of this article — or nearing that level? If not, examine your distribution system from all angles and find ways to minimize distribution costs while maintaining or exceeding customer services levels. For a payload of 100+ high pressure cylinders, \$200 to \$300 per delivery is not much by today’s driver, maintenance and fuel cost standards!

*Paul Matlock is CEO of TAP Resources, a network of Compressed Gas Industry experts focused on providing operations performance improvement services to the U.S. industrial, medical and specialty gases industry. Paul is a “veteran” of the improvement in performance and costs in compressed gases. The result of his experience with GTS is that he considers that system a test model for Best Practices in compressed distribution. Once this system has been proven efficient for GT&S, TAP Resources will be rolling this concept out to other locations as a Best Practice, with modifications for each client, and revisions that meet the needs of the evolving nature of Lean Thinking. Contact: TAP Resources, P.O. Box 245, Orefield, PA 18069; Tel: 888-803-3918; Email: [info@tap-resource.com](mailto:info@tap-resource.com) [info@tap-resource.com](mailto:info@tap-resource.com); Website: [www.tap-resource.com](http://www.tap-resource.com). □*